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THE

STUDY OF MEDICINE,

BY

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CLASS III.

CLASS III.

HÆMATICA.

DISEASES OF THE SANGUINEOUS FUNCTION.

ORDER I.
PYRECTICA.
FEVERS.

II.
PHLOGOTICA.
INFLAMMATIONS.

III.
EXANTHEMATICA.
ERUPTIVE FEVERS.

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DYSTHETICA.
CACHEXIES.

CLASS III.

PHYSIOLOGICAL PROEM.

Cl. III. Proposed scope of inquiry.

On treating of the very important and extensive range of diseases included under the present class, let us first take a brief survey of the sanguineous function which is the immediate theatre of their operation, and the means and instruments by which it is maintained.

General division.

This comprehensive subject may be most conveniently discussed under the three following divisions:—

I. The machinery of the sanguineous system.
II. Its moving powers.
III. The nature of the fluid conveyed.

I. Machinery of the sanguineous system.

Unsatisfactory hypotheses of the ancients.

I. The importance of the blood to the general health of the animal system, and its existence in every part of almost every organ, have been known in every country in which medicine has been studied from the first dawn of its cultivation. It is not necessary to retrace the wild and idle hypotheses that were started in ancient times to account for the means by which this universal fluid travels from one part to another, and appears in every quarter. It is enough to observe, that till the great and transcendent doctrine of the circulation of the blood was completely established, the acutest physiologists wandered about in darkness and uncertainty, seldom satisfying themselves, and still more rarely the world around them: insomuch that I am not acquainted

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A circulation loosely suspected by the ancients.

with a single conjecture that was ever vented upon the subject that is in the least degree worthy of repetition.

The opinion, indeed, of a circulation of the blood through the system was loosely started by various writers even of very early times; but under every modification it was found to be accompanied with so many difficulties as always to be dropped almost as soon as it was revived, and rarely, till the middle of the seventeenth century, to show itself to any effective purpose. Hippocrates guessed at it, Aristotle assented to it, Serveto, who was burnt as a heretic in 1553, imperfectly taught it by pointing out the smaller circulation, or that through the lungs; and our own illustrious countryman, Harvey, about a century afterwards, gave a finish to the inquiry, by establishing the larger circulation, or that over the whole frame.

Proofs to which it appeals in the present day.

The principal proofs of a circulation of the blood offered by Harvey, and those, indeed, on which we chiefly rely in the present day, are deduced from the disposition of the valves of the heart; the range of the arteries and the veins, and from what occurs when either the arteries or veins are opened, compressed, tied, or injected. Thus, if we open an artery, the blood that jets from the puncture flows in a direction from the heart; and in a direction to the heart, if we open a vein. A compression or ligature upon an artery, puts a stop to the blood that flows from above the ligature; but the same upon a vein puts a stop to the blood from below it, in which direction the vein immediately becomes distended. In like manner, an acid liquor injected into the veins coagulates the blood in the direction towards the heart, proving that the venous blood is every where travelling in this course. While an examination by the microscope of the half-transparent vessels of frogs and other cold-blooded animals confirms the view laid open by these phænomena, and shows to us a continual flow of the blood from the heart into the arteries, thence into the veins, and thence to the heart again; thus completing the circular career.

Arteries generally terminate in veins:

The arteries, therefore, generally speaking terminate in veins; but by no means the whole of them, for many

I. Machinery of the sanguineous system. Many of them in exhalents:

others perhaps in lymphatics.

are exhalent or secretory, and terminate in minute orifices on the surface of membranes and other organs; which no microscope, however, has yet discovered, but whose existence we have every reason to believe, as we perceive a perpetual oozing of fluids, whose flow we cannot otherwise account for, into all the cavities of the body; which keeps their surfaces moist, and makes motion easy. While, according to M. Magendie, whose experiments, however, seem to want confirmation, other minute arteries terminate in lymphatics, which he makes as much a part of the sanguiferous system as the veins; the lymphatics conveying the more attenuate part of the arterial blood, slightly tinged of an opaline or rose-coloured hue, though sometimes of a madder-red; such as the fluid which oozes upon puncturing the lymphatics, or the thoracic duct after a long fast. It is not necessary to examine into the correctness of this hypothesis in the present place, as we shall have occasion to notice it more at large when treating of the excernent system, which will be found to embrace both the absorbent and secretory vessels. It should, however, be remarked, that in M. Magendie's hypothesis the veins, and not the lymphatics, are the absorbents of the body *.

Instruments of the sanguiferous machinery.

Omitting then for the present the consideration of the lymphatics, the machinery by which the circulation of the blood is principally effected consists of the heart itself, the arteries, and the veins.

Heart in the more perfect classes of animals.

The heart in the more perfect classes of animals, as mammals, birds, and most, though not all, amphibials, is a very compound organ; for in all these the blood, when received from the veins, is first sent from this central organ to the lungs to be duly aerated, or, according to Mr. Ellis's hypothesis, to be unloaded of its excess of carbone, and is afterwards returned from the lungs to the same organ before its general circulation over the system commences. These classes, therefore, are said to possess a double circulation. And as the heart itself consists of

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* Précis Elementaire de Physiologie, Tom. II.

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Heart double, and circulation double.

four cavities, a pair, composing what is called an auricle and a ventricle, belonging to each of the two circulations; and as each of these pairs is divided from the other by a strong membrane, these classes are also said to have not only a double circulation, but a double heart; a pulmonary and corporeal circulation, and a pulmonary and corporeal heart.

Seat and appendages of the heart.

The heart is well known to be situated in the chest, between the lungs, above the diaphragm, and to be influenced by all the motions of the diaphragm. It is loosely surrounded by a dense and fibrous membrane, named, from its situation, pericardium, possessing little sensibility, closely connected with the substance of the diaphragm, and reflected over the heart and its large vessels. Its use is to confine the heart in its proper post; and to lubricate it, in its state of unceasing activity, with a peculiar fluid, denominated liquor pericardii, supposed to be secreted by peculiar glands, but more probably exhaled from the capillary arteries of the internal surface. In a state of health this fluid is small in quantity and of a reddish hue, some portion of the red parts of the blood being intermixed with it; but, in a morbid state of the membrane, it is apt to accumulate, change its properties, and lay a foundation for various complaints.

Restrictive power of the pericardium.

The power possessed by the pericardium of restraining the heart to its proper post, is obvious from the following fact. If, after detaching the sternum and opening the chest, an incision be made into the pericardium of a living animal wide enough for the purpose, the heart will often be found to leap out of its sac through this aperture, and to fall on the right or the left side of the thorax. And hence the common and colloquial expression derived from common feeling, of the leaping of the heart for joy—and it might as well be said for grief or terror—is founded on actual fact. The heart, which is loosely confined by its vessels, often leaps as far as its surrounding sac will allow it. And hence again one cause of the violent palpitations to which this organ is subject, as we shall hereafter have to explain more at large.

How far the heart leaps for joy.

Palpitation of the heart.

I. Machinery of the sanguineous system. Arteries and veins.

The general structure of the arteries and veins has, till of late years, been considered as alike, both being supposed to consist of two separate tunics, an elastic or outer, and a muscular or inner, independently of the soft and common covering which lines them within. Yet nothing can differ more widely than the relative spissitude and power ascribed to these tunics compared with each other in different parts of the circulating course. As the heart is the salient point of the circulation, and pours forth about two ounces of blood at every jet, the greatest force is exerted against the arteries that immediately issue from the heart. Here, therefore, we find the greatest resisting power; for in the aorta and pulmonary artery, the elastic tunic is stronger than the muscular, by which contrivance the arterial canal is never too much dilated in either by the action of the heart in its contraction, or, as the Greeks call it, systole. In like manner this tunic becomes stronger at the bending of the joints, and continues so through the whole length of the curve; and the same provision takes place at the sharp angles made by a trunk and its branch, or at an angle formed by the division of one trunk into two. As the arteries, however, recede from the heart, the blood, resisted at every step by the elastic tunic of the canal it flows through, progressively loses its impetus, and a less elastic power becomes necessary and is actually provided. At a considerable distance, therefore, from the heart, in whatever direction the arteries ramify, their muscular tunic soon balances their elastic, and gradually becomes superior; till at length, in the capillary arteries, it is nearly, if not altogether, the only tunic of which the canal consists: whence the ease with which these vessels collapse on some occasions, as loss of blood, or the exercise of terror, or any other depressing passion; and the equal facility with which they open in other cases, as in the sudden blush of shame or modesty.

Arterial structure.

Skilful adjustment of the arterial and muscular tunics.

Cause of collapse on loss of blood.

Cause of blushing.

Venous structure.

In the veins the elastic and muscular tunics are considerably weaker than in the arteries; they have, nevertheless, a more difficult task to perform than arteries;

I. Machinery of the sanguineous system. Why furnished with numerous valves.

for, with a few exceptions, they have uniformly to force the current of blood upwards to the heart against the power of gravitation. They are hence far more numerously furnished with valves than the arteries, by which the ascending columns of blood are prevented from retrograding; and have by many physiologists been supposed to possess some degree of contractile, and consequently of propulsive power by the joint pressure of the sides of the arteries or muscles that accompany them, and that of the external atmosphere; to which subject, however, we shall have occasion to return presently.

Whether muscular fibres really exist in arteries and veins.

I have thus far adverted to the commonly received opinion, and that taught by the most celebrated physiologists of our own country, and especially by Mr. John Hunter. Nevertheless it has long been a disputed point, whether, not merely the veins, but even the arteries, possess muscular fibres. The physiological arguments of Bichat, and the chemical researches of Berzelius, militate so strongly against the affirmative to this proposition, that the existence of such fibres in both classes of vessels has of late been doubted by many, and the contractility of the arteries been ascribed to their elasticity of texture alone; while the veins are conjectured to be altogether passive in the change of diameter they sustain. Yet whatever doubts may be entertained upon this subject in veins and arteries, the existence of muscular fibres cannot be questioned in the minute vessels termed capillaries.

Causes of gradual diminution of projectile force.

I have observed, that the force with which the blood is at first projected from the heart is progressively diminished by the resistance it encounters in the thick and powerfully elastic tunic of the trunks or large arteries into which it is immediately propelled. There are two other causes which co-operate in producing a progressively diminishing force. The first is the short angles against which the blood has to strike at the origin of all the different branches: and the next, and most important, is the larger diameter of the general mass of the arteries, compared with that of the heart or the arteries from which they immediately proceed; the range of the diameter augmenting in proportion to the increase of the ramifications. From experiments, indeed, made by Mr. John Hunter on the carotids of camels and swans *, the very same arteries appear gradually to widen from the upper end or that nearest the heart; the lower, or that most remote. From all which he concludes that the aggregate diameter of the arterial system forms a cone whose apex is at the heart. And he concludes, also, and most correctly, that this conic proportion is most obvious, increases most rapidly, and spreads with its broadest base in infants, or rather in the fetus; for here the main trunks of the arteries are extremely short, while the capillaries are very large, and, from the obliteration of many vessels in subsequent life, more numerous than at any other period. It is highly probable indeed that while the aorta in childhood is not a fourth part of the size of the same vessel in an adult, the aggregate of the capillaries of the former possesses a diameter more than four times as large as the aorta in the latter.

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Diameter of the arterial system, a cone.

Conic proportion varies in different ages.

We may hence, in some degree, account for the difference in the quickness of the pulse at different periods of life. In early infancy it beats as much as 140 strokes in a minute; towards the end of the second year it is reduced to 100; at puberty it is only 80; about virility 75; and after sixty years of age seldom more than 60 in a minute. For reasons connected with the preceding, it is more frequent in persons of short stature, those of strong passions of mind, those of great muscular exertion, and in females. From the increasing diameter of the blood-vessels as they diverge from the heart, the blood has a greater space for moving forward, and is able to move with more freedom: and hence one reason for the empty state in which the arteries are found immediately after death: a second reason is, that the tunics of the veins

Why the pulse different in different ages.

Why the arteries are found empty after death.

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* On Blood, Inflammation, &c. Part I. Sect. viii. p. 170.

I. Machinery of the sanguineous system.

possessing little or no elasticity, readily dilate to the distensive power of the blood as it moves forward: a third, and indeed the principal reason, as sufficiently proved by Dr. Carson of Liverpool, is, the natural elasticity or resilience of the lungs, which, by keeping them after death in a state of dilation, allows the blood to accumulate here as in a vacuum. And hence, again, the reason of the accumulation of blood which is usually found in the chest after death, as well as the empty state of the vessels.

Why blood is accumulated in the chest after death.

The above facts urged against the doctrine of circulation.

This vacuity of the arteries upon death, was one of the objections urged very forcibly by the ancients against the circulation of the blood, or even its following at all the course of the arteries; and which Dr. Harvey very unsatisfactorily replied to, by asserting, contrary indeed to fact, that the heart continues to contract for some time after death, and even after it has received blood:—for the heart is generally found loaded with blood *. And it is this objection, together with some others, that has induced Mr. Ker of Aberdeen once more to revive the doctrine of the ancients, and deny that of a circulating system altogether, assigning to the arteries the uses the ancients allotted to them.

Circulation still denied.

It still, however, remains to be ascertained by what means the ultimate branches of the arteries terminate in those of the veins, and how this communication is conducted.

Diameter of the aorta and pulmonary artery alike.

The pulmonary artery, which receives from the heart the blood returned into it from the veins, bears a very close proportion to the diameter of the aorta †, which sends the blood from the heart over the whole of the larger circulation. The aorta possesses more strength, but their elasticity is nearly equal, and the measure of each, on being slit, is about $3\frac{3}{8}$ inches: and hence there can be little doubt that the quantity of blood sent back

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* See Dr. Carson "On the Vacuity of the Arteries after Death." Medico-Chir. Trans. Vol. XI. Part I.

† See Hunter on Blood, p. 133.

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Balance of arterial and venous blood, how maintained.

to the heart, is on an exact balance with that which flows from it. It is not, however, at any time the identical blood which is thus returned to the heart; for every organ takes from the general current, as it visits them, such parts and such principles as it stands in need of to support the wear and tear of its own action; while another considerable portion is thrown off as we have already observed in the form of secretions or exhalations from various emunctories that open externally, or into internal cavities. But the drain which is hereby produced on the arterial blood is compensated by the various fluids collected from every part of the absorbent vessels, and by the flow of the chyle from the digestive organs; both which are poured into the thoracic duct, and finally intermixed with the returning current of venous blood a short time before it reaches the heart; and in this manner the balance of arterial and venous blood is maintained.

Sum total of the blood estimated very differently.

With respect to the actual quantity of blood contained in the entire system, our means of determination are so imprecise, and consequently the calculations, or rather the conjectures that have been offered upon the subject, are so strikingly discrepant, that it is not easy to reach a satisfactory conclusion. It is only necessary to state a few of the different opinions that have been offered to show the absurdity of several of them. Muller and Abeildgaard estimate the weight even in an adult at very little more than eight pounds *; Borelli at 20; Planch at 28; Haller at 30; Dr. Young at 40 †; Hamberger at 80; and Keil at 100. Blumenbach states the proportion in an adult healthy man to be as 1 to 5 of the entire weight of the body. Yet little reliance can be placed on this last mode of determination, on account of the great diversity in point of bulk and weight of adults, whose aggregate quantity of blood is in all probability nearly alike. The mean numbers, as those of Baron Haller and Dr. Young,

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* Blumenb. Elem. Phys. p. 4, § 6.

† Phil. Trans. 1809. p. 5.

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making the amount from 30lb. to 40lb. appear most reasonable; and perhaps fall not far short of the sum intended by Professor Blumenbach. The subject requires further examination, and a nicer estimate.

II. Moving powers of the sanguineous system.

II. There is another question which has also, in all ages, greatly occupied the attention of physiologists, but upon which we still remain in a very considerable degree of indecision: and that is, the MOVING POWERS employed in the circulation; or, in other words, the projectile force by which the blood is sent forward.

What excites the heart to contract?

The heart forms the salient point of motion, and with its systole or contraction the circulation commences. But what is it that excites the heart to contract? One of the most common answers to this question in the writings of physiologists is the flow of the blood into the ventricles. But this is merely to argue in a circle; for the question still returns, what is it that makes the blood flow into the ventricles? Others have referred the cause to an immediate impulse from the brain. Now, in contractions of the voluntary muscles, there is no doubt of the existence of such an impulse, for we are conscious of it, and assent to it; but we are neither conscious of nor assent to any thing of the kind in respect to the contraction of the heart; and are perfectly sure that no such power of the will takes place during sleep. It is a mere assumption; and an assumption which can only apply to a part of the great animal kingdom even during wakefulness; for, as it is only in the mammals and birds that the nerves can be thus influenced in their passage to the heart, the postulate does not account for the contraction or dilatation of the heart in other classes of animals *.

Hunter's stimulus of necessity, what.

Mr. John Hunter ascribes this action of the heart, or rather the whole career of the circulation, of which he regards the action of the heart as a single and ordinary link in the general chain, to what he calls a stimulus of necessity; by which he seems to mean an instinctive

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* Hunter on Blood, p. 148.

II. Moving powers of the sanguineous function.

Regarded as the primum mobile of the heart.

power dependent on the general sympathy of the system which in every part is craving or demanding such an alternation; or, in other terms, is uneasy without it. His words are as follows: "The alternate contraction and relaxation of the heart constitutes a part of the circulation; and the whole takes place in consequence of a necessity, the constitution demanding it, and becoming the stimulus. It is rather, therefore, the want of repletion, which makes a negative impression on the constitution, which becomes the stimulus, than the immediate impression of something applied to the heart. This we see to be the case, wherever a constant supply or some kind of aid is wanted in consequence of some action. We have as regularly the stimulus for respiration, the moment one is finished an immediate demand taking place; and if prevented, as this action is under the influence of the will, the stimulus of want is increased. We have the stimulus of want of food which takes place regularly in health, and so it is with the circulation. The heart, we find, can rest one stroke, but the constitution feels it; even the mind and the heart is thereby stimulated to action. The constant want in the constitution of this action in the heart, is as much as the constant action of the spring of a clock is to its pendulum, all hanging or depending on each other*."

Little meaning furnished by such an explanation.

Mr. Hunter's "Treatise on the Blood," is a work of such sterling merit, so rich in its facts, and so valuable in its remarks, that, notwithstanding a few nice-spun and chimerical speculations that occasionally bewilder it, there is no book on physiology which a student ought to study more assiduously. Yet I am much afraid that the language now read has no great deal of meaning in it; and that it does little more than tell us that the heart contracts because it contracts, or, rather, that the circulation takes place because it takes place.

Few physiologists indeed seem to have adopted this

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* On Blood, p. 149.

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Oxygene received from the lungs regarded as the primum mobile.

opinion: and hence a far more plausible and intelligible hypothesis has been since offered. This consists in supposing the heart to be stimulated by the oxygene of the blood introduced into it at the lungs by the process of respiration. Such was the favourite opinion of Dr. Darwin: and such appears to have been the opinion of professor Blumenbach, who was so fully persuaded of the oxygenized state of the blood when first received by the heart and poured into the arteries, that he expresses a desire of changing the terms *arterial* and *venous* blood for *oxygenized* and *carbonized.*

Opposed by Mr. Ellis's experiments on respiration.

That oxygene, if introduced into the blood, would stimulate the heart, there can be no doubt, from numerous experiments which prove that a very small quantity of any foreign body whatever, even an ounce or two of solution of gum Arabic, infused into the blood by opening a vein, will not only stimulate the heart, but the stomach, intestinal canal, and other organs with which the heart readily sympathizes*. But, unfortunately for Dr. Darwin's hypothesis, Mr. Ellis, as we observed at some length in the proem to the preceding class, has advanced a variety of arguments so stubborn and cogent, to prove that no oxygene whatever is introduced into the blood in its transit through the lungs, that, till these arguments are disposed of, the present hypothesis, beautifully simple as it is, is entitled to the claim of ingenuity, and nothing more.

By what power is the circulation maintained after it has once commenced?

Harvey's opinion.

But passing by, till this question is settled, the doctrine of the primum mobile, or first moving power of the blood from the heart—by what means is the motion, thus mysteriously commenced, maintained afterwards through the whole circulatory course? Harvey replied to this question by asserting, that it is maintained by the action of the heart alone, which propels the blood equally through the entire length of the arteries and veins, both which he regarded as tubes alike inert, and in no respect contributing to the propulsive energy.

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* De Chirurgiâ Infusoriâ renovandâ. Aut. J. M. Regnaudot. 8vo. Lugd. Bat. 1779.

II. Moving powers of the sanguineous system.

At first received with universal assent.

This dictum was at first received with universal assent; and the mechanical physiologists immediately set to work in order to calculate the force with which the heart acts at every contraction, in the same manner as they had endeavoured to calculate the force of the stomach in the process of digestion. It is not necessary to enter into the details of these estimates. It is sufficient to observe, that from Michelot to Sauvages or Cheselden, they all differed from each other as widely as the calculations of the quantity of blood in the system; and that while Keil estimated the projectile power of the heart at eight ounces, Borelli fixed it at not less than one hundred and eighty thousand pounds.

But no common result arrived at.

The heart itself not the sole propulsive power.

Proofs of this assertion.

There are various facts, however, which sufficiently prove that the heart cannot be the sole propulsive power through the entire range of the circulation; the chief of which are: Firstly, that the pulse, if the systole of the heart were the only projectile force, must take place, not SYNCHRONOUSLY all over the system, as it is well known to do, except in a few morbid cases in which local causes interfere, but SUBSEQUENTLY to the contraction of the heart, and SUCCESSIVELY through the whole line of the arterial tubes, in proportion as they lie more remote from the salient point. And, secondly, that whatever may be the projectile power of the heart, it must altogether cease with the arteries, and cannot reach the veins.

Hypothesis of a vis à tergo.

And hence arose another hypothesis, which ascribed the propulsive power to a progressive *vis à tergo*, or a force communicated from the ventricles of the heart to the commencement of the arteries, producing a vibration or alternate dilatation and contraction of their tunics, through their whole length to the veins; and thus acting in conjunction with the projectile force of the heart itself.

Supposed proof derived from pulsation.

In proof of this auxiliary power afforded by the coats of the arteries, the phænomenon of pulsation was triumphantly appealed to; which, it was maintained, gave a direct and incontrovertible evidence that an alternate

II. Moving powers of the sanguineous system.

Bichat's explanation.

dilatation and contraction, or enlargement and diminution in the diameter of the arteries, is constantly taking place. This, by Bichat, is attributed solely to the locomotion of the arterial tubes, propagated to their terminal ramifications, and thence continued to the veins; but by most modern physiologists, to a joint power compounded of the action of the heart and the arteries.

Arteries sustain no change of bulk from pulsation.

M. Bichat's doctrine has of late been incontrovertibly refuted by one or two very simple experiments of M. Magendie*. Besides which, however, it is now a well-ascertained fact, and one that has been thoroughly elucidated by Dr. Parry of Bath, that no increase of size, or indeed change of bulk of any kind takes place in arteries during either the systole or diastole of the heart's ventricles in a state of health†. The arteries of animals, to ascertain this point, have been exposed in different parts, and to considerable lengths, without evincing the least apparent increase of size. And hence it is the pressure of the finger, or of some other substance, against the side of an artery that alone occasions pulsation, in consequence of the resistance hereby made to the regular flow of the blood; the alternating beat being produced by the greater momentum with which the current strikes against the finger or other cause of obstruction, during the systole than during the diastole of the heart.

Pulsation alone protected by pressure from without.

The pulse of an inflamed part rarely synchronizes with that of the heart or of the neighbouring parts.

It may be still further observed, that, in a state of inflammation, the pulse of the inflamed part, in consequence of local excitement, is much more frequent than that of the heart or of any other organ. Thus in a whitlow, the radial artery may give to the finger a hundred pulsations in a minute, while not more than seventy strokes may be exhibited in any other part of the system. The rapidity of the pulse is in this case usually in proportion to the degree of the inflammatory action;

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* Precis Elementaire de Physiologie. Tom. II. p. 320.

† Experimental Inquiry into the Nature, Cause, and Varieties of the Arterial Pulse, &c. By C. H. Parry, M.D. F.R.S. &c. Bath, 1816.

II. Moving powers of the sanguineous system.

and hence, if the system should labour at the same time under ten different inflammations in different parts or organs of a different structure, as glands, muscles, and membranes, it is possible that it may have so many different seats of pulsation taking place at such different parts at one and the same time, while all of them are at variance with the pulsation of the heart.

Hence the hypothesis of a vis à tergo unsatisfactory, whencesoever derived.

The hypothesis, therefore, of a *vis à tergo*, whether dependant upon the heart alone, upon the arteries alone, or upon a combination of the two, has by no means proved sufficiently satisfactory, or been sufficiently supported by evidence in respect to the entire circulation. Under no modification does it account for the flow of the blood through the veins. And in regard to the whole of the views which have been thus far examined, Mr. John Hunter, as I have already observed, was so extremely discontented, that he placed no more stress upon one part or organ of the sanguiferous system than upon another; upon the heart than upon the arteries; or upon the arteries than upon the veins; regarding the whole economy as the result of a sort of instinct, to which, as just noticed, he gave the name of a stimulus of necessity: and which opinion he supported by making an appeal to insects which have no proper heart; to worms, most of which have no heart whatever; and to monsters which have been born without a heart; whilst at the same time he contended that veins, at least the larger, exhibit, under certain circumstances, an expansile and contractile power as well as arteries. "I think it probable," says he, "that where there is an universal action of the vascular system, the action of the arteries and veins is alternate: that where the arteries contract, as in many fevers, the veins rather dilate, more especially the larger*."

Further opinions of Mr. J. Hunter.

Upon the whole we may conclude with Haller, that the heart exerts a very considerable degree of force in the general economy of the circulation, although it is

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* On Blood, p. 187.

II. Moving powers of the sanguineous system.

Moving power of arterial circulation.

impossible to estimate its power with mathematical precision. And we may reasonably refer the first, or arterial half of the general circuit of the blood to this force, if not alone, in conjunction with the aid contributed by the elastic and contractile tunics of the arteries themselves, whether pulsation be a result of these powers alternately exercised, or of mere local pressure.

Moving power of venous circulation.

Vacuum in the heart produced by its systole.

General circulation produced by the double power of the heart acting as a forcing and suction pump: assisted by surrounding agency.

It yet remains, however, to account for the second half, or that which consists in the passage of the blood through the veins; and upon this subject there is one most important and elucidating fact, which, till of late, has never been in any degree brought forward in the course of the inquiry. It is this: that when the heart by the contraction of its ventricles, has exhausted itself of the blood contained within it, a comparative vacuum must follow, and the blood from the venæ cavæ, or venous system at large, be sucked up into the right auricle. This ingenious remark seems first to have been thrown out by Dr. Wilson Philip: and Dr. Carson of Liverpool, taking advantage of it, has constructed a simple and beautiful theory of the projectile powers employed in the circulation, the general principle of which may be expressed in a few words. The heart is supposed to act at one and the same time in a two-fold capacity. By the contraction of the ventricles, it propels the blood through the arteries; and by the dilatation of the auricles, it draws it up from the veins. It is at once, therefore, a forcing and a suction pump. The contraction of the heart, and consequently its comparative vacuum, are supposed to be considerably assisted by the elasticity of the lungs, and the play of the diaphragm, which we had occasion to notice at some length in our physiological proem to the preceding class, and the great resistance which they jointly afford to the atmospheric pressure; whilst this very pressure, applied on every part of the exterior of the animal frame, contributes in an equal degree to the ascent of the blood in the veins; for, as the column of venous blood is perpetually girt on all sides, and cannot fall back because of the numerous valves with which the veins are furnished, it must necessarily take an opposite or ascending direction.

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Difficulties still remaining to be explained.

There are, nevertheless, numerous difficulties that yet remain to be explained; such as the proportion of projectile power furnished by the conducting pipes themselves; by what means the want of a diaphragm is compensated in birds and reptiles which have no such organ; and what constitutes the projectile power in animals that have no heart, and consequently no double pump to work with.

Communication between remote organs distinct from that of the blood.

Between the spleen and stomach.

Between the stomach and bladder.

There is also another curious fact which physiology has pointed out, but has never hitherto been able to explain: and that is, a direct communication between remote or unconnected organs, apparently, by some other channel than the circulation of the blood. Something of this kind seems to exist between the spleen and the stomach, the former of which has been proved by Sir Everard Home to receive fluids from the cardiac portion of the latter, though we can trace no intercourse of vessels: but the most extraordinary example of this kind which at present we seem to possess, is the communication which exists between the stomach and the bladder. For the experiments of Sir Everard Home*, and the still more decisive ones of Dr. Wollaston and Dr. Marcet†, seem to have established beyond a controversy, that certain substances introduced into the stomach, as rhubarb or prussiate of pot-ash, may pass into the bladder without taking the course of the blood-vessels, and consequently by some other channel; a channel, indeed, of which we know nothing. This is a subject well worth studying: for if two organs so remotely situated as the stomach and the bladder be thus capable of maintaining a peculiar intercourse; so other organs may possess a like intercommunion; and by such means lay a foundation for those numerous

This subject entitled to further inquiry.

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* Phil. Trans. 1811, p. 163.

† Ibid. p. 96.

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sympathies between distant parts which so often strike and astonish us. M. Magendie's hypothesis that veins are absorbents will explain the facts in Sir Everard Home's experiments, but has no bearing upon that of Dr. Wollaston and Dr. Marcet.

Doctrine of pulsation, and its importance.

The discovery of the circulation of the blood has given a great importance to the DOCTRINE OF PULSATION; for by the strength or weakness, the slowness or frequency, the hardness or softness, the freedom or oppression, the regularity or irregularity of the beat of the artery against the pressure of the finger, we are now able to determine many momentous facts, relative, not merely to the state of the heart, but of the general system; and, in many cases, to prognosticate upon grounds which were altogether unknown to the earlier cultivators of medicine. And on this account it is that the Greek physicians took but little notice of the pulse, which, even in the days of Celsus, was regarded as a *res fallacissima.*

Pulse how influenced.

The pulse is influenced indirectly by the general state of the body, but directly by that of the heart, or of the arteries, or of both, or of the quantity of blood which the vessels have to contain.

Standard in adult life.

In an adult male of good health, and not too corpulent, the common standard of the pulse may be fixed at seventy strokes in a minute: but it varies in different individuals from sixty to eighty, being greatly affected by the temperament, and partly by the habit of life. In the man of a high sanguine character it rarely sinks below eighty, and is often at ninety; and in the melancholic it seldom rises above sixty, and sometimes sinks to forty. In idiosyncrasies the discrepancy is so considerable, and complicated with other changes than those of frequency and tardiness, that there is no reducing them to any rule.

Influenced by temperament and idiosyncrasies.

Singular instances.

Lizari tells us of a person whose pulse was not more than ten beats in a minute*. Dr. Heberden says, he once

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* Raccolta d'Opusculi Scientifici, p. 265.

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saw a person whose pulse, as he was told, did not number in the beginning of his illness above twelve or sixteen in a minute; though he suspects in this and all other instances, where it is below forty, that the artery beats oftener than it can be felt; because such slow pulses are usually unequal in their strength, and some of the beats are so faint as but just to be perceived; so that others, probably still fainter, are too weak to make a sensible impression on the finger. He had attended two patients, who, in the best health, had always very unequal pulses, as well in their strength as in the spaces between them, but which constantly became regular as the patient grew ill, and gave a never-failing sign of recovery in their once more returning to a state of irregularity *. In women the pulse is, generally speaking, six or eight strokes in a minute quicker than in men, and hence, many women of firm health and a lively disposition have a standard pulse of eighty-five.

Quicker in women than in men.

Rate in infancy.

In a weakly frame the pulse is usually rapid; for debility is almost always accompanied with irritability, and the heart partakes of the general infirmity. In this case, also, from the feebleness with which the heart contracts, the ventricle is but imperfectly emptied, and consequently soon filled again, and sooner stimulated to contraction. Hence, in infancy the pulse is peculiarly quick, and gradually becomes slower as the child increases in strength. Dr. Heberden, who paid particular attention to this subject, estimates the pulse on the day of his birth, and while asleep, from a hundred and thirty to a hundred and forty; and fixes it at little less than the same rate, or that of a hundred and twenty strokes, for the first month. During the first year he calculates it at from a hundred and twenty to a hundred and eight: during the second, at from a hundred to ninety: during the third, from a hundred and eight to eighty, at which it continues for the three ensuing years. In the seventh year

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* Medic. Trans. Vol. II. Art. II. p. 29.

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In advanced life.

it is frequently reduced to seventy-two; and in the twelfth, to seventy*. In advanced age, from the small quantity of sensorial power secreted, and the general inertness of the organs, the pulse sinks often considerably below sixty strokes in a minute. "I knew one," says Dr. Heberden, "whose chief distemper was the age of four-score, in whom, for the last two years of his life, I only once counted so many as forty-two pulsations; but they were seldom above thirty, and sometimes not more than twenty-six. And though he seemed heavy and torpid, yet he could go out in a carriage, and walk about his garden, receive company, and eat with a tolerable appetite."

To what number calculable by the finger.

The pulse may be counted with great accuracy up to a hundred and forty or a hundred and fifty in a minute; and if the stroke be equal, and the wrist slender, so that we can take in more than half the artery by the pressure of two fingers, we can reach a hundred and eighty: but beyond this there is great confusion and uncertainty: and it is difficult, therefore, to understand by what nice mode of measurement Dr. Wendt could distinguish, as he tells us he has done, a pulse of two hundred and forty-three strokes in a minute†.

Quickened by slight incitements.

The pulse is quickened by very slight excitements both external and internal. The stimulus of the air, of the light, and of sounds, is sufficient to make that of an infant awake fifteen or twenty strokes more frequent than when it is asleep, and beyond their control. The pulse of an adult is usually quickened eight or ten strokes during the digestion of a meal; and running, or any sudden and rapturous emotion of the mind will double the ordinary scale. The depressing passions, on the contrary, check it, and have, sometimes, put a total stop to the heart's motion, with a deadly shock, and killed the patient in a moment. There are many drugs that

In like manner soon checked.

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* Med. Trans. Vol. II. Art. II. p. 29.

† De Mutatione quâdam pulsûs insigni. Erlang. 1778. V. Bald. Syll. v.

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have a like tendency, of which all the simple narcotic poisons afford examples. The digitalis and hyoscyamus are expressly used on account of this property: the prussic acid, and the plants that contain it, as bitter almonds and the leaves of the prunus *lauro-cerasus*, when given in free doses, destroy the irritability, and extinguish the pulse instantly: and this so effectually that the heart, when immediately examined, has been insensible, not only to puncture, but to concentrated acids.

Sometimes stopped instantly.

How quickened by morbid excitements.

As the excitement of the stomach during the natural process of digestion is capable of accelerating the pulse eight or ten strokes in a minute, there can be no difficulty in conceiving that it may be still more accelerated by a morbid excitement of any other large organ, and particularly where the primary seat of excitement is in the sanguiferous system itself. And as, generally speaking, the frequency of the beat is in proportion to the degree of excitement, the pulse becomes a sort of nosometer, or measurer of the violence and danger of the disease: and it measures it equally, whether the return of the beat be below the standard of health or above it.

Hence the pulse a nosometer.

Other circumstances to be noticed in connexion with its quickness.

How far, in either case, the pulse may vary from its natural number without great danger, depends upon a multitude of collateral circumstances, as the age of the patient, his idiosyncrasy, the peculiar disease he is labouring under, and the strength or weakness of the system. And hence, in addition to the number of the pulse, we should also attend to its degree of fulness, softness, firmness, freedom, and regularity; a critical knowledge of which can only be learnt by experience and a nice discrimination.

The doctrine often rendered too complicated.

It has been highly injurious, however, to the study of medicine, that this subject has been often too finely elaborated, and the variations of the pulse been ramified into so many divisions and subdivisions, and nice unnecessary distinctions, as to puzzle the young and be of no use to the old. And hence, some of the best pathologists of modern times have been too much disposed to

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shake off nearly the whole of the incumbrance, and pay no attention whatever to the pulse except in regard to its frequency. Amongst this number was Dr. Heberden: "Such minute distinctions of the several pulses," says he, "exist chiefly in the imagination of the makers, or, at least, have little place in the knowedge and cure of diseases. Time, indeed, has so fully set them aside, that most of these names of pulses are now as unheard of in practice as if they had never been given*." And in forming, therefore, his prognostic of a disease, while he appeals to the pulse merely in respect to its number, he draws his other grounds of decision from the nature of the malady, and the violence of its specific signs.

Sometimes too much simplified.

But this is to limit the subject to too strict a boundary; and to exclude ourselves from what, in many instances, are clear and even leading diagnostics. There are some practitioners, and of very high merit too, whose fingers are no more capable of catching the finer distinctions of the pulse than the ears of other persons are the niceties of musical sounds. I suspect this was the case with Dr. Heberden, as it was also with the late Dr. Hunter; of whom Mr. John Hunter observes, that, "though he was extremely accurate in most things, he could never feel that nice distinction in the pulse that many others did, and was ready to suspect more nicety of discrimination than can really be found. Frequency of pulsation in a given time is measurable by instruments; smartness or quickness in the stroke, with a pause, is measurable by the touch, but the nicer peculiarities in the pulse are only sensations in the mind. I think," continues this distinguished physiologist, "I have been certain of the pulse having a disagreeable jar in it when others did not perceive it, when they were only sensible of its frequency and strength: and it is, perhaps, this jar that is the specific distinction between constitutional disease or irritation and health. Frequency of pulsation may often arise from stimulus, but the stroke will then be soft; yet softness is not to be depended on as a mark of health, it is often a sign of dissolution; but then there must be other attending symptoms*."

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* Med. Trans. Vol. II. p. 20.

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Dr. Fordyce's table of the pulse is, perhaps, unnecessarily complicated; but the strength or weakness, fullness or smallness, hardness or softness, regularity or irregularity of the pulse, are indications nearly as clear as its frequency or slowness, and, in many cases, quite as diagnostic of the general nature of the disease. Frequency and slowness of the pulse taken by themselves, indicate little more than the degree of irritability of the heart, or the force of the stimulus that is operating upon it. The strength and regularity, or weakness and irregularity of the pulse are as palpable to the finger as the preceding signs, and show, in characters nearly as decisive, the degree of vigour or debility of the heart; and hereby, except where this organ is labouring under some local affection, the vigour or debility of the system, which a mere variation in the state of the frequency of the pulse will not tell us. A full and a small pulse may be distinguished with almost as much ease as any other property it possesses; this Mr. John Hunter ascribes to the state of the arteries: but, if I mistake not, it gives us rather a measure of the quantity of blood circulating through the system, than of the muscular strength of the arteries, or of the heart itself; which is often a very important indication, and especially when combined with the preceding signs; as it will then be our best guide in cases where we have determined upon emptying the vessels as far as we can do it without danger. Hardness and softness of the pulse, together with that vibratory thrill which has been called wireness, are not quite so easily learnt as its fullness and smallness, but a nice finger will readily discriminate them, and practice will point out the difference to every one. These characters Dr. For-

Strength and regularity, or weakness and irregularity of the pulse.

Full and small pulse.

Hard and soft pulse,

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* On Blood, Part II. Ch. iii. p. 318.

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dyce makes dependant, and I think with great reason, on the state of the arteries rather than on that of the heart, or on the quantity of the circulating fluid; and Mr. John Hunter concurs in the same view. They measure the degree of vascular tone, or power of resistance; and when the same effect, whether above or below the natural standard, takes place in the capillary arteries, it produces that change in the pulse which he distinguished by the names of obstruction and freedom, but which it is not always easy to discriminate from several of the preceding qualities; nor is it of great importance, as we have in such cases other symptoms that more strikingly manifest the same fact.

Obstructed and free pulse.

Examples of the doctrine carried to an extreme.

Thus far, perhaps, the doctrine of pulsation may be studied to advantage; but when, beyond this, we come to a distinction between the free and dilated pulse, as proposed also by Dr. Fordyce; the quick and the frequent, as proposed by Stahl [*]; and the dicrotic, coturnizing, and inciduous, proposed by Solano [†], as mere sub-varieties of the rebounding, or redoubling, itself a variety of the irregular pulse, we perplex pathology with a labyrinth in which the student is lost, and the master wanders to no purpose.

Pulse of Solano.

Organic pulses of De Bordeu.

De Bordeu acquired great reputation in the middle of the last century, for applying the doctrine of pulsation as an index to the diseases of every distinct organ of the body; whence he not only adopted most of the subdivisions of Solano, but added others, and subdivided them still further. He started it as a new hypothesis, which he endeavoured to support by facts and arguments, that every separate organ possesses a principle of life in some measure peculiar to itself, and independent of the rest of the frame; that each is endowed with a proper function, and susceptible of proper sensations and movements; and that, by the agreement and co-operation of all these dis-

On what founded.

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[*] De Differentiâ Pulsûs celeris et frequentis.

[†] Novæ Observationes circa crisium prædictiones ex pulsû. Wetsch, Medicinæ ex pulsû. Vind. 1770. Vienn. 1753.

tinctive powers, the life and health of the entire system are built up and maintained. These principles are developed and defended in his thesis "De Sensû generice considerato," published at Montpellier in 1742. Though arrogating the merit of originality, they are, however, little more than a revival of the ancient doctrine of harmony invented by Aristoxenus, and at one time very popular in Greece, as we learn from Lucretius:

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> —Multa quidem sapientum turba putarunt
> Sensum animi certâ non esse in parte locatum;
> Verùm habitum quemdam vitalem corporis esse,
> ʽΑΡΜΟΝΙΑΝ Graiei quam dicunt *.

M. de Bordeu, in adopting this hypothesis, supposed farther, that an affection of any particular organ will occasion a peculiar variation in the pulse from its natural state; and, by a careful attention to these changes, he conceived himself capable of ascertaining the seat of the disease, and the channel through which nature was aiming at a crisis. He describes, in consequence, an overwhelming multiplicity of *organic pulses*; but his general division is into superior and inferior pulses: and this he founds on an observation that the actions of the parts seated above the diaphragm, and of those below, excite very different impressions on the circulatory system. These views are chiefly given in the most famous of all his publications, intitled, "Recherches sur le Pouls par rapport aux crises †." This hypothesis became extremely popular in France and Germany, and excited a considerable degree of attention at Edinburgh. It is now, however, little heard of, and is by no means worth reviving.

How applied.

In effect, a voluminous and complicated classification of pulses is rather a proof of an active fancy than of a

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* De Rer. Nat. Lib. III. 98. See the author's examination of this hypothesis, and its resemblance to others of later date, in the notes to his Translation of Lucretius. Book V. 100 and 104.

† Paris 1756, 8vo.

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sound judgment: and though Dr. Heberden and Dr. Hunter may have thought too lightly of this branch of pathognomy, it is better to adopt their simplicity than the puerile conceits of many more elaborate pulse-makers. The Chinese have a more operose system of pulsations than any that have appeared in Europe; but nothing can be more whimsical than their divisions. Avicenna treated of the pulse musically; and Hoffenuffer, pursuing his principles, drew up, in 1641, a musical scale of the pulse, dividing it into musical time, and marking the different beats by semibreves, minims, and crotchets, semiquavers, and demisemiquavers; thus reducing his patient to a harpsichord, and his profession to a chapter on thorough-bass.

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III. To speak minutely of the CONSTITUENT PRINCIPLES OF THE BLOOD, would carry us too far into the regions of animal chemistry; and I shall hence limit myself to a very brief analysis of those that are fixed or confinable, having already paid some attention to the gasses in the physiological proem to the preceding class.

Analysis of Parmentier and Deyeux.

For the first judicious account of these principles, we are indebted to an elaborate memoir of MM. Parmentier and Deyeux, who arranged them under the following heads:—1. A peculiar aroma, or odour, of which every one must be sensible who has been present at a slaughter-house, on cutting up the fresh bodies of oxen. 2. Fibrin, or fibrous matter. 3. Gelatine. 4. Albumen. 5. Red colouring matter. 6. Iron. 7. Sulphur. 8. Soda. 9. Water.

Corrected by later experiments.

Still minuter and more exact experiments have since been made upon particular portions or the whole of the blood, especially by Dr. Marcet [*], Dr. Bostock [†], and Professor Berzelius [‡], which confirm the greater part of the preceding results, but have detected a few errors which it is necessary to notice.

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[*] Trans. Medico-Chirurg. Soc. Vol. II. p. 370.

[†] Id. Vol. I.

[‡] Id. Vol. III.

Neither the blood of man nor of quadrupeds, so far as they have been examined, contain any gelatine. "The mistake," says M. Berzelius, "arises from the gelatinous appearance of the albumen; I have never been able to detect a particle of gelatine in blood, and, as far as my researches extend, I have found gelatine to be a substance altogether unknown to the economy of the living body, and to be produced by the action of boiling water on cartilage, skin, and cellular membrane; substances which are totally distinct from fibrin and albumen." It follows, therefore, that wherever gelatine is found in the animal frame, it is produced by a decomposition and recombination of the particles of the blood by the action of the secernents.

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No gelatine in the blood.

The sulphur detected in the blood by Parmentier and Deyeux does not exist in a free state, but is a component part of its albumen, as is also its carbone and hydrogene, which, in consequence, have as strong a claim to be considered as constituent principles as sulphur. It is by means of its constituent sulphur that the albumen of blood or of an egg, becomes capable of blackening a silver instrument employed to stir it. And as it is the albumen that is now known to dissolve the oxydes of mercury introduced into the blood in the cure of syphilis, it is probably owing to the sulphur of the albumen that this effect is produced; or that the oxydes of any metals introduced as medicines into the blood are dissolved; since the albumen of the serum is also discovered to be a powerful menstruum in dissolving iron, copper, and other metallic preparations.

Sulphur of the blood a component part of the albumen alone.

Chief solvent of metallic oxydes.

The iron traced in the blood is, in like manner, a constituent principle of the red colouring matter, and exists in so intimate an union with it that it cannot be detected by the best re-agents we possess, till the composition of the colouring matter is totally destroyed by heat, or some other means.

Iron of the blood a constituent of the colouring matter.

With these explanations we are now able to proceed to a clear comprehension of the following brief analysis of the blood, as corrected by the later experiments of

Analysis of M. Berzelius.

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M. Berzelius, supported by those I have just adverted to, of Dr. Marcet and Dr. Bostock.

Blood composed of a suspending and a suspended part.

Blood is composed of two parts, one homogeneous and liquid, and one only suspended in the liquor, and spontaneously separating from it when at rest.

Liquid, or suspending part.

The homogeneous and liquid part consists of much albumen and a little fibrin, both combined with soda, and all dissolved in water. It also contains a small portion of a few other saline and animal substances.

Colouring matter, or suspended part.

The suspended part consists of the colouring matter. It differs from albumen chiefly in its colour and its insolubility in serum. Iron enters as a constituent ingredient into this material, in the proportion of $\frac{1}{300}$ of its weight. It seems to be the colouring principle; but cannot be separated from it as long as it continues to be colouring matter. This separation can only be effected by combustion, or by the concentrated acids, both of which agents entirely decompose the substance with which the metal is combined. The iron exists in the form of oxyde, with a small proportion of subphosphate of the same. But the colouring matter cannot be artificially produced by uniting albumen with red subphosphate of iron.

Earthy phosphates and carbonate of lime, how far existent in the blood.

Fibrin, albumen, and colouring matter, resemble each other so closely, that they may be considered as modifications of one and the same substance. Each of these three substances *yields*, when decomposed, but does not *contain*, earthy phosphates and carbonate of lime; for the entire blood holds in solution no earthy phosphate, except, perhaps, in too small a quantity to be detected.

How the bones are supplied with earthy materials.

From these earths it is clear that the bones derive their earthy supply; which, however, it is also clear they can only do, as in the case of the formation of gelatine, in consequence of a decomposition of the blood as it arrives at the secernents of the bones.

Colouring matter how separatable.

Vauquelin endeavoured to separate the colouring matter from the blood by means of sulphuric acid; but this material is not wanted, and does not very well answer the purpose. A method proposed by M. Berzelius in

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another communication is much simpler as well as more effective *. It conststs in placing the clot or coagulum of blood upon blotting paper, to get rid of the serum as completely as possible. The clot is then to be put into water, in which the colouring matter dissolves, while the fibrin remains unaffected; when the water being evaporated, the colouring matter is obtained in a separate state. On reducing this matter to ashes, about $\frac{1}{200}$ of iron can always be separated.

Whence the iron, sulphur, &c. obtain an existence in the blood.

It is difficult to determine by what means the iron, or the sulphur, or the elementary principles of calcareous earth, obtain an existence in the blood. If these materials were equally diffused throughout the surface of the earth, we might easily conceive that they are introduced through the medium of food. But as this is not the case; as some regions, like New South Wales, at least on this side the Blue Mountains, contain no lime-stone whatever, and others no iron or sulphur, while all these are capable of being obtained apparently as freely from the blood of the inhabitants of such regions, as from that of those who live in quarters where such materials enter largely into the natural products of the soil; it is perhaps most reasonable to conclude that they are generated in the laboratory of the animal system itself, by the all-controlling influence of the living principle.

Aggregate amount of iron in the blood of an adult.

What may be the aggregate quantity of any of these minerals in the mass of blood belonging to an adult, has not been determined with accuracy. The amount of the iron has been calculated by Parmentier and Deyeux, upon grounds furnished them by Menghini, at seventy scruples, or very nearly three ounces, estimating the average of blood in the vessels of an adult at twenty-four pounds, which is most probably something short of the mark.

Whether iron exists in any other part than the colouring matter.

Whether iron exists in any other part of the animal frame than the colouring matter of the blood, is in some

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* Ann. de Chim. et de Phys. V. 42.

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degree doubtful. Vauquelin seems to have traced it in egg-shells and oyster-shells; and Mr. Brande thinks he has done the same in the chyle and in the serum, and this as largely as in the colouring matter of the blood, which, after all, he thinks contains only a very minute quantity*. But these experiments are too indefinite, and by no means coincide with those of Berzelius, since confirmed by other chemists. If the experiments of Menghini may be relied upon, human blood contains a larger proportion of iron than that of quadrupeds; quadrupeds have more than fishes, and fishes more than birds.

What part the iron is intended to perform.

But though there can be no longer any question of the existence of iron as a constituent principle in the blood, we are in total ignorance of the part it is intended to perform. It is, perhaps, the colouring material, though, as I have already observed in the physiological proem to the preceding class, even here we are still very much in the dark, and are overwhelmed with contending hypotheses. It is probable that the red particles of the blood contribute to the strength of animals to whom they are *natural*, as conjectured by Mr. J. Hunter, and that the strength of such animals is in proportion, or nearly so, to their number. Yet such particles are never found in the blood of several classes of animals, as insects and worms: and in those in which they are found, they have often no existence in the commencement of life; for they are not discoverable in the egg of the chick, when the heart first begins to pulsate; nor are they, in any animals, pushed into the extreme arteries, where we must suppose the serum reaches. And hence, whatever their value, they cannot be regarded as the most important part of the blood, or as chiefly contributing to the growth and repair of the system †.

Form and diameter of the red particles of the blood.

Various attempts have at different times been made, to determine the form and measure the diameter of the corpuscles of the blood, but even this does not seem to have been accompanied with very great success. Della Torre, by applying his microscope, detected them, as he thought, to be flat circles or rings with a perforation in the centre; and Mr. Hewson ascribed to them the same shape, but represented them as hollow or vesicular, with a dot of red colouring matter in the centre instead of a perforation; so that, if his description could have been substantiated, they might literally have been regarded as the wheels of life moving on iron axles. Mr. Hewson's hypothesis, however, extended much farther; for, by a variety of plausible experiments, he persuaded himself, and many others also, that it is the office of the thymus and lymphatic glands to secrete and elaborate these vesicles which are then carried by the lymphatics and thoracic duct to the arteries, and from the arteries to the spleen which furnishes them with their coloured axles. These physiological and microscopic fancies, however, have been long overturned; and the general shape of the corpuscles has been sufficiently proved to be globular, the diameter of which, as measured by the microscopical experiments of M. Bauer, is $\frac{1}{2000}$ part of an inch; a dimension, however, which has since been reduced by Captain Kater to $\frac{1}{5000}$ part of an inch *. M. Bauer has also ascertained, as he thinks, that it is not the centre of the globule that is dotted, but its outline that is surrounded with colouring matter; so that, instead of being annular wheels with iron axles, they are spherular wheels with iron tiers. It does not seem that the microscope has added much that can be depended upon to our knowledge upon this subject.

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* Phil Trans. 1812, p. 112.

† On Blood, p. 46. 48.

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Hewson's hypothesis:

long since overthrown.

Bauer's microscopic experiments.

We have also still much to learn, not merely in respect to the real difference between human blood and that of quadrupeds, but the real difference between that of any one species of animal and any other. M. Berzelius observes, that " the great agreement in the composition of human and ox blood is remarkable, and explains to

Real difference between the blood of different species undetected.

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* Phil. Trans. 1818, p. 173. 187.

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us the possibility of the phænomena observed in the experiments in transfusion." But we have a clear proof that the blood of one species of animals differs so much from that of another, either in its principles or their modification, that no benefit can result from transfusion, unless from like kinds to like kinds. Thus, according to several interesting experiments of Dr. Blundell, a dog, asphyxiated by hemorrhage, may easily be recovered by a transfusion of blood from another dog, but is little or not at all relieved if the blood be taken from man *.

Blood, in many respects, the most important fluid of the animal frame:

acted upon by external bodies, volatile and concrete.

Upon the whole, however, we cannot but regard the blood as in many respects the most important fluid of the animal machine: from it all the solids are derived and nourished, and all the other fluids are secreted; and it is hence the basis or common pabulum of every part. And as it is the source of general health so it is also of general disease. In inflammation it takes a considerable share, and evinces a peculiar appearance. The miasms of fevers and exanthems, are harmless to every other part of the system, and only become mischievous when they reach the blood: and emetic tartar, when introduced into the jugular vein, will vomit in one or two minutes, although it might require, perhaps, half an hour if thrown into the stomach, and in fact does not vomit till it has reached the circulation. And the same is true of opium, jalap, and most of the poisons, animal, mineral, and vegetable. If imperfectly elaborated, or with a disproportion of some of its constituent principles to the rest, the whole system partakes of the evil, and a dysthesis or morbid habit is the certain consequence; whence tabes, atrophy, scurvy, and various species of gangrene. And if it become once impregnated with a peculiar taint, it is wonderful to remark the tenacity with which it retains it, though often in a state of dormancy or inactivity, for years or even entire generations. For as every germ

When imperfect, the great source of morbid habits.

Transmits mental and corporeal taints to subsequent generations.

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* Trans. Medico-Chir. Soc. Vol. IX, p. 86.

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and fibre of every other part is formed and regenerated from the blood, there is no other part of the system that we can so well look to as the seat of such taints, or the predisposing cause of the disorders I am now alluding to; often corporeal, as gout, struma, phthisis; sometimes mental, as madness, and occasionally both, as cretinism.

Hence supposed to be alive.

It is hence the blood has been supposed to be alive: a belief of very high antiquity, and which has been warmly embraced by Dr. Harvey and many others of the first physiologists of modern times. It was a favourite opinion of Mr. John Hunter, and runs through the whole of his doctrines. "That the blood," says he, "has life, is an opinion I have started above thirty years, and have taught it for near twenty of that time in my lectures. It does not, therefore, come out at present as a new doctrine; but has had time to meet with considerable opposition, and acquire its advocates. To conceive that blood is endowed with life while circulating, is, perhaps, carrying the imagination as far as it well can go; but the difficulty arises merely from its being a fluid, the mind not being accustomed to the idea of a living fluid*."

As taught, especially by Mr. J. Hunter.

The experiments and train of reasoning he urges in favour of this opinion are highly ingenious and peculiarly strong. And, though they may not be demonstrative of a vital and energetic essence separate from the blood itself, but inherent in its substance, and controling its motions, they seem very clearly to show that the blood is endowed with peculiar powers; and that, as matter at large is subject to the laws of gravitation, so the matter of the blood is subject to the laws of instinct. We may here add, in favour of Mr. Hunter's opinion, the following two corollaries of Dr. Philip, deduced from a large field of experiments. "The power of the blood-

Influenced by the laws of instinct.

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[*] On Blood, p. 77.

vessels, like that of the heart, is independant of the nervous system.—The blood-vessels can support the motion of the blood after the heart is removed*."

Instinct simple life operating by the exercise of its own laws.

Admitting these deductions to be established, the power here referred to, and capable of influencing the blood or the blood-vessels, separately from that of the heart, and of the nervous system, must be the power of simple life, or of instinct, which is simple life operating by the exercise of its own laws.

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* Phil. Trans. 1815, p. 445.

CLASS III.

HÆMATICA.

ORDER I.

PYRECTICA.

Fevers.

HEAT AND NUMBER OF THE PULSE PRETERNATURALLY AUGMENTED: USUALLY PRECEDED BY RIGOR, AND FOLLOWED BY PERSPIRATION: DURING THE RIGOR PAINS FIXED OR WANDERING: LASSITUDE: DEBILITY OF MIND, AND VOLUNTARY MUSCLES.

CLASS. III.
ORDER I.
Difficulty of defining fever.

THERE is no complaint so common as fever; none in which mankind, whether professional, or laical, are so little likely to be mistaken, and yet none so difficult to be defined. In reality no writer seems to have been fully satisfied with his own definition; and it is not extraordinary, therefore, that he should seldom have given satisfaction to others. The difficulty proceeds from the complexity of the symptoms that enter into the character of a fever; the contrariety of many of them to each other in different stages of it; and the occasional absence of

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some that, in other instances, appear to constitute its leading features.

Difficulty of fixing divisions and generic names.

There are also two other difficulties of considerable magnitude that the nosologist has to contend with in laying down a clear and perspicuous survey of fevers; and that is, their division or collocation, and their generic names. But as I have already pointed out these difficulties, and the means by which they are attempted to be remedied under the present arrangement and nomenclature, in the running commentary to the order before us in the volume of Nosology, I shall beg to refer the reader to the observations there laid down, and shall subjoin only one or two additional remarks upon the same subject.

Heat and pulse not always augmented in fever.

Although the number of the pulse as well as the heat is preternaturally augmented in almost every case of fever, an extraordinary instance is sometimes to be met with that opposes the general law, for the most part dependant, I believe, on a great and sudden oppression of the brain; an explanation which withdraws the anomaly and accounts for the ordinary increase of pulsation as soon as such oppression is removed. Thus, in the yellow fever of Antigua in 1816, the pulse, as Dr. Musgrave informs us, was, in one instance, under forty-four. "We almost fancied," says he, "this unusual softness might be constitutional: but, on opening a vein, it greatly increased in frequency; and, after the loss of a considerable quantity of blood, it numbered eighty, with nearly complete relief from every uneasy sensation*."

In such cases, the heat of the system usually exhibits as little febrile augmentation as the pulse: for as the former is the result of increased action, till such increased action takes place, the heat, as in the first stage of the paroxysm, may continue even below the natural standard.

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* Trans. Med. Chir. Soc. Vol. ix. p. 133.

Instance of hot fit preceding cold.

There is a still more curious variation from the general law, which is sometimes, though very rarely, found to take place, of which Schenck gives a single example that occurred in his own practice; I mean, a reversed order of the symptoms of the febrile paroxysm, and an appearance of the sweating stage before the shivering and hot fit*.

To provide for these extraordinary and anomalous incidents by any definition whatever, is beyond the power of language. They must be left to themselves, and will rather confirm than disturb the definition now offered, agreeably to the maxim of the Schools—exceptio probat regulam.

Principle adopted by the author in laying down the genera of fevers.

In dividing fevers into distinct genera I have taken the line of demarcation from the character of their duration, as limited to a single paroxysm; as composed of numerous paroxysms, with intervals of intermission or perfect apyrexy; as composed of numerous exacerbations, with intervals of remission, or imperfect apyrexy; and as composed of a single series of increase and decrease, with a mere tendency to intervals of remission, without perfect apyrexy at any time. Other nosologists have drawn their generic distinctions from other circumstances; as their disposition or indisposition to putridity; their inclination to a sporadic or an epidemic character; the vigour and violence, or weakness and debility of their action; or, in the language of Dr. Darwin, the nature of their influence on the sensitive or irritative fibres of the animal frame. The most obvious mark, however, and that which has been most generally approved, is the character of duration assumed in the arrangement before us. To all the rest there are greater or less objections, which, as I have already examined them in the comment just referred to, need not be repeated in the present place.

Compared with former principles.

Regulated, therefore, by the principle before us, fever admits of the four following genera:—

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* Lib. vi. Obs. 34.

ORDER I. Pyrectica. Fevers.

I.	EPHEMERA.	DIARY FEVER.
II.	ANETUS.	INTERMITTENT FEVER.
III.	EPANETUS.	REMITTENT FEVER.
IV.	ENECIA.	CONTINUED FEVER.

To each of these belong several species, and to most of the species several varieties, as will be noticed in their respective order.

Ordinary nomenclature slightly deviated from.

Some slight deviation from the ordinary nomenclature may be observed in the generic names above: but the reader can have no difficulty upon this head, as he will find the changes that have hereby been occasioned are in every instance founded upon a principle of correctness and simplification; and consequently calculated to disentangle rather than to add to his incumbrances, and to facilitate his progress in the labyrinth before him. The term Ephemera, is, indeed, well known to every one. Anetus and Epanetus are Greek terms, importing intermittent and remittent, from ἀνιημι and ἐπανίημι. Enecia, from the same tongue, denotes continued action, and is a derivation from ἠνέκης.

Preliminary inquiries necessary to be noticed.

Before, however, we enter upon the practical part of this subject, it appears necessary to make a few remarks upon one or two other questions that have very largely occupied the attention of many pathologists, and especially concerning the proximate and remote causes of fever; and the tendency which fever has been supposed to evince of terminating suddenly, either favourably or unfavourably, at fixed periods of its progress.

Morbid causes of diseases various.

Proegumenal cause what? Procatarctic what?

Proximate and remote causes are rather terms of recent than of ancient writers. In early times the causes of diseases chiefly contemplated were its PROEGUMENAL or predisponent, and its PROCATARCTIC or occasional. Thus, an hereditary taint, or habitual indulgence in high living, may be regarded as a proegumenal cause of gout; and catching cold, or an unusual exertion of muscular exercise, may form its procatarctic cause: both of which are absolutely necessary; for it is clear that the latter, without the former, would not produce the

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disease; and it is just as clear that the former might remain harmless in the constitution for years, were it not to meet with the co-operation of the latter, which is often, on this account, denominated an exciting cause. Generally speaking, the first was regarded as an internal, and the second as an external cause; and in the instance selected they are so; but they are not so always.

Exciting cause what?

To be acquainted with causes of this kind is always useful; and, in guarding against the approach of diseases, it is often of the utmost importance: but they give us very little information upon the real nature of diseases, and the mode of managing them when present. And hence another set of causes have been adverted to, and have of late been chiefly studied, and particularly in the case of fever. "That only," says Gaubius, "deserves the name of a physical cause which so constitutes the disease, that, when present, the disease exists; while it continues, the disease continues; when changed or removed, the disease is altered or destroyed." It is this which constitutes the PROXIMATE cause, and is, in fact, the essence of the disease, the actual source of all its effects. The REMOTE cause is that which directly produces the proximate; as a specific virus in syphilis, or a specific miasm in influenza, or epidemic catarrh.

Proximate and remote causes what?

In fever we can often trace the remote causes; though we are still too little acquainted with the nature of several of them to be able to restrict them to a specific mode of action; of the proximate cause, we know but very little at present, and it will probably be long before we shall know much more.

Let us, however, begin with the PROXIMATE CAUSE as that which has most excited the attention of physicians in all ages. Upon this subject, indeed, a great deal of learned dust has been raised, and a great deal of valuable time consumed. Ancient speculations, for they are not entitled to the name of theories, have been overthrown; and modern speculations, in vast abundance, erected upon their ruins; which, in rapid succession, have also had their day and expired. It is an inquiry,

Proximate cause has given rise to various speculations.

ORDER I. Pyrectica. Fevers. Proximate cause.

therefore, not likely to prove very productive; yet, as forming a part of medical science of which no student should be altogether ignorant, it seems necessary to extend it to a brief survey of the most popular doctrines which have been advanced upon the subject in different ages.

Humoral and nervous pathology.

Fevers then, in respect to their proximate cause, have been conjectured to originate from a morbid change, either in the composition of the blood, or in the tone or power of the living fibre. The first view has given rise to various hypotheses, that rank under the common division of the HUMORAL PATHOLOGY. The second has given rise to other hypotheses appertaining to the common division of the FIBROUS OR NERVOUS PATHOLOGY.

Chief hypotheses that have been offered upon the subject of a proximate cause.

The hypotheses derived from the one or the other of these sources, that are chiefly entitled to attention, are the following: of which the first two belong to the former division, and the remainder to the latter.

I. That of the Greek schools, founded on the doctrine of a concoction and critical evacuation of morbific matter.

II. That of Boerhaave, founded on the doctrine of a peculiar viscosity, or lentor of the blood.

III. That of Stahl, Hoffman, and Cullen, founded on the doctrine of a spasm on the extremities of the solidum vivum, or living fibre.

IV. That of Brown and Darwin, founded on the doctrine of accumulated and exhausted excitability, or sensorial power.

V. To which we may add that fevers have, by some physiologists, as Dr. Clutterbuck, and Professor Marcus, been identified with inflammation; and their proximate cause been ascribed to increased action in some particular organ.

I. Hypothesis of concoction: doctrine of the Greek schools.

I. It was the opinion of Hippocrates that fever is an effort of nature to expel something hurtful from the body, either ingenerated, or introduced from without. Beholding a violent commotion in the system, followed by an evacuation from the skin and kidneys, with which the paroxysm terminated, he ascribed the commotion to a

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fermentation, concoction, or ebullition, by which the noxious matter was separated from the sound humours; and the evacuation to a despumation or scum which such separation produced, or rather to the discharge of this morbid scum from the emunctories that open externally. Galen supported this view with all the medical learning of his day; and it is the only explanation of fever to be met with in medical writings, through the long course of three thousand years; in fact, till the time of Sydenham, who still adhered to it, and whose pages are full of the language to which it naturally gave birth.

Extent of its range.

Blended with the chemistry of the day.

It blended itself almost insensibly with the language of the chemists of the day, notwithstanding the professed hatred of Paracelsus and Van Helmont towards the whole range of Galenic doctrines, and the solemn pomp with which the former had condemned, and burnt the entire works of Hippocrates and Galen.

And hence, under the influence of chemistry, at this time assuming a soberer aspect, the supposed animal despumation was contemplated as possessed according to different circumstances, of different chemical qualities and characters; and particularly as being acid, alkaline, effervescent, or charged with some other acrimonious principle, too highly exalted, or in too great a proportion.

Highly ingenious and partially correct.

This doctrine, considered merely hypothetically, is not only innocent, but highly ingenious and plausible. It is in unison with several of the phænomena of pyrectic diseases; and derives a strong collateral support from the general history of exanthems or eruptive fevers, in which we actually see a peccant matter, producing general commotion, multiplying itself as a ferment, and at length separated and thrown off at the surface by a direct depuration of the system.

In what respect incorrect.

So far therefore as relates to exanthems, the opinion is sufficiently correct. But the moment it is brought forward as the proximate cause of fever properly so called, in which there is no specific eruption, it completely fails.

For first, no explanation is here given as to the means

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by which any such concoction or fermentation, or multiplication of morbific matter in any way takes place. Next, there are many fevers produced evidently by cold, fear, and other excitements, as well mental as corporeal, in which most certainly there is no morbific matter introduced, and wherein we have no reason to conceive there is any generated internally; while the disease, limited perhaps to a single paroxysm, closes nevertheless with an evacuation from the skin or the kidneys. And, thirdly, we sometimes behold fevers suddenly cured, as Dr. Cullen has observed, by a hemorrhage so moderate, as for example a few drops of blood from the nose, as to be incapable of carrying out any considerable portion of a matter diffused over the whole mass of the blood; while we are equally incapable of conceiving how such diffused morbific matter could collect itself at a focal point, or pass off at a single outlet: or of tracing in the discharge, after the minutest examination, any properties different from those of blood in a state of full health.

Sometimes followed by an injurious practice.

I have observed that this hypothesis is, however, harmless enough when merely brought forward as a speculation. But it has not always been limited to this point; for it has occasionally been advanced as a practical and efficient principle; and the febrile commotion, and particularly the hot fit, has, in treating the disease, been purposely increased, with a view of assisting nature in her curious but unknown process of expelling the peccant material; and the most dangerous consequences have followed.

II. Lentor in the blood or doctrine of Boerhaave.

II. The acute and penetrating mind of Boerhaave, who was born in 1668, was sufficiently sensible of this danger; and the discoveries which were now taking place in chemistry and physiology, led him progressively to the construction of a new theory, which in a few years became so popular as to obtain a complete triumph over that of the Greek Schools.

Whence derived.

Leeuwenhoeck, by a delicate and indefatigable application of the microscope to animals of a transparent skin, had endeavoured to establish it as a fact, that the consti-

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tuent principles of the blood consist of globular corpuscles; but that these corpuscles differ in size in a regular descending series according to the constituent principles themselves; and that each set of principles has its peculiar blood-vessels, possessing a diameter just large enough to admit the globules that belong to it, and consequently incapable, without force, of allowing an entrance of those of a larger magnitude; and hence that the blood-vessels possess a descending series as well as the particles of the blood.

How applied.

It was upon this supposed fact, that Boerhaave built his hypothesis. He conceived that almost all diseases may be resolved into an introduction of any given series of particles of blood into a series of vessels to which they do not properly belong; and he distinguished such introduction by the name of *error loci.* He conceived still farther, that this heterogeneous admixture is very frequently taking place; and that its chief cause consists in a disproportion of one or more sets of the sanguineous principles to the rest, by which their globular form is occasionally broken down and destroyed, and rendered either too thin and serous, or too gross and viscid. The viscidity of the blood he distinguished by the name of LENTOR; and to a prevalence of this lentor, or viscidity, he ascribed the existence of fever; maintaining that the general disturbance which constitutes fever proceeds from an ERROR LOCI of the viscid blood, whose grosser corpuscles, from their undue momentum as well as superabundance, press forcibly into improper series of vessels, and stagnate in the extremities of the capillaries, whence the origin of the cold stage, and consequently of the stages that succeed it, to which the cold stage gives rise*; and hence those medicines which were supposed capable of dissolving that tenacity, or breaking down the coalescence of such a state of the blood, were denominated DILUENTS, HUMECTANTS, and ATTENUANTS, whilst those of an opposite character were called INSPIS-

Error loci what?

Medical nomenclature hence influenced.

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* Aph. 756. Comment Van Swiet. Tom. II. p. 528. Edit. Lugd. Bat. 40. 1745.

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SANTS: terms which have descended to our own day, and are still retained even by those who pay little attention to the hypothesis that gave them birth.

An elective system combining parts of many others.

The system of Boerhaave, therefore, consisted of an elegant and artful combination of both the earlier and later doctrines of corpuscular physiology. Without deserting the humoral temperaments of Galen, or the constituent elements and elective attractions of the alchemists, he availed himself of the favourite notions of the corpuscular pathologists, their points or stimuli, their frictions, angles, and spherules, derived from the Cartesian philosophy, which were now exercising as triumphant a sway over the animal as over the material system; and interwove the whole into an eclectic scheme, so plausible and conciliatory to all parties, that all parties insensibly felt themselves at home upon it, and adopted it with a ready assent. In the emphatic language of M. Quesnay, it was "LA MEDICINE COLLECTIVE."

Fact in favour of the hypothesis.

The most triumphant fact in favour of the Boerhaavian hypothesis is that the crust on the blood in inflammations, and cauma or inflammatory fever is often found peculiarly dense. But as fevers (and certainly the greater number) are found without any such crust; and as a similar crust, though perhaps, not quite so dense, exists under other and very different states of body, as in pregnancy and scurvy (porphyra), even this leading appeal has long lost its power of conviction: whilst the abruptness with which fevers make their assault, from sudden occasional causes and in constitutions of every diversity, forbid the supposition that in such cases a lentor or sizy crasis of the blood, and especially a glutinosum *spontaneum* can have time to be produced, however it may exist occasionally, and be perhaps the source of other disorders.

But unavailable.

III. Spasm of the extreme vessels or doctrine of Stahl, Hoffman, and Cullen.

III. To this period of time, in the production of fever, and indeed of all other diseases, the human body was regarded as almost entirely passive, a mere organic machine operated indeed upon by some AUTOCRATEIA,

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as NATURE, or a VIS MEDICATRIX, but in the same manner as other machines, and mostly by similar laws. Its muscles were contemplated as mechanical levers, and its vessels as hydraulic tubes, whose powers were calculated upon the common principles of mechanics and hydronamics; and were only supposed to be interfered with by the internal changes perpetually taking place in the fluids they had to convey. A new era, however, at length began to dawn upon the world: a more comprehensive spirit to pervade medical study: the animal frame was allowed to exhibit pretensions superior to the inanimate, and not only to be governed by powers of its own, but by powers which are continually and systematically from a given point operating to a preservation of health where it exists, and to a restoration of health where it has been lost or injured. Stahl who was contemporary with Boerhaave, and in the university of Halle in 1694, first started this loftier and more luminous idea,—more luminous, though the light was still struggling with darkness; made the mind the controlling principle, and the solidum vivum, or nervous system, the means by which it acted. Fever, on his hypothesis, consisted in a constrictive or *tonic spasm*, in his own language *spasmus tonicus*, produced by a torpor or inertness of the brain, at the extremity of the nerves, and counteracted by the remedial exertions of the mind, the vires medicatrices of his hypothesis, labouring to throw off the assailing power; whence the general struggle and commotion by which the febrile paroxysm is characterized. Hoffman, who was a colleague of Stahl, took advantage of this new view; followed up the crude and primary ideas of Stahl with much patient and laborious investigation; and soon presented to the world a more correct system, in a more attractive style; but apparently with a disingenuous concealment of the source from which he had borrowed his first hints. He omitted the metaphysical part of the Stahlian hypothesis, took from the mind the conservative and remedial power over the different organs with which Stahl had so absurdly endowed it; seated this power as

Era and progress of Stahl.

Explanation of his hypothesis.

Followed up and improved by Hoffman.

Hoffman's hypothesis how distinguished from Stahl's.

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a law of life in the general organization; separated the nervous from the muscular fibres, the latter of which were regarded as only the extremities of the former by Stahl; allowed a wider range and longer term to the constrictive spasm of fever; and changed its name from spasmus *tonicus* to spasmus *periphericus**: giving also to the moving power of the muscular or irritable fibres the name of *vis insita*, as that of the nervous fibre was called *vis nervea*.

Ingenuousness of Boerhaave.

It is highly to the credit of Boerhaave, that his mind, in the latter part of his life, was so fully open to the merits of this hypothesis, that he admitted the agency of the nervous power, though a doctrine that struck at the root of his own system, of which we have a clear proof in the change which occurs in the fourth edition of his Aphorisms, and particularly aphorism 755, where he lays down the proximate cause of intermitting fevers. Hitherto it had run thus "unde post accuratum examen totius historiæ intermittentium causa proxima constituitur viscositas liquidi arteriosi." But to this, in the edition before us, is added the following: "forte et nervosi (liquidi) tam cerebri, quam cerebelli cordi destinati, inertia †."

Ingenuousness of Gaubius.

It is also equally creditable to the learned Gaubius, that, though strongly attached to the Boerhaavian school in which he was educated, and a zealous contender for many of its doctrines, his understanding was alike open to the clearer and simpler views of the chemists of the day, upon various points not yet generally adopted, and allowed him to become a more thorough convert to their philosophy. The reader may judge of this change in his mind by the following passage: "An et naturæ humanæ facultas inest, moleculas, acris detritas aut intropressas angulis, in sphærulas tornando, blanditium creandi? Non satis constat speciosam ideam æqualiter in fluidam solidamque acrimoniam quadrare.—Credibilius profectò

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* Med. Nat. Systemat. Tom. III. § i. cap. 4. Bochmer, Dis. de Spasmi Peripherici signo in febribus continentibus. Hal. 1765.

† De Motû Tonico. Theoria Medica vera. Halle 1734.

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mixtione chemica magis quam mechanica rotundatione, id opus perfici*." In effect, there not only was at this time, but had been for many years antecedently, a general feeling among the cultivators of medicine, that neither the laws of animal chemistry nor of the living fibre had been sufficiently studied for the purposes of a correct pathology: in proof of which it may be sufficient to refer to various articles on both subjects, inserted in the Ephemerides Naturæ Curiosorum, published at Frankfort, in 1684; and the writings of Baglivi †, and Dr. Willis‡; and still more particularly to Dr. Gilchrist's elaborate treatise on nervous fevers, inserted in the Edinburgh Medical Transactions§; in which last the author, following up the hint thrown out by Boerhaave in the aphorism just quoted, endeavours to show how well the two ideas of lentor and spasm are disposed to amalgamate in forming the proximate cause of fever; the spasm consisting of an universal muscular tension, and the lentor being united according to the nature of the case with inflammation, acrimony, or both; and hence often producing what he denominates an alternate NISUS and RE-NISUS.

General inclination to the same views long in previous existence.

Baglivi, Willis, Gilchrist.

The materials, however, were now becoming too unwieldy; and the wheels of the machine were clogged by the very forces that were designed to increase its motion. Dr. Cullen was well aware of this, and boldly ventured upon a new attempt for the purpose of simplifying and facilitating its progress. As his basis he took the hypothesis of Stahl as modified and improved by Hoffman: and on this basis erected his stately and elaborate structure, so well known to the medical world, full of ingenuity and daring genius, and which, if it be at this moment crumbling into decay, certainly is not falling prostrate before any fabric of more substantial materials or more elegant architecture. Dr. Cullen has been

Cullen's modification in the formation of a new system.

Its high merit.

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* Pathol. § 298-300.

† Specimen de fibrâ motrici et morboso.

‡ Pathologia Cerebri et Nervorum.

§ Vol. IV. Art. XXIII. and Vol. V. Part. II. Art. XLVIII.

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accused of the same want of ingenuousness towards Hoffman, as Hoffman is chargeable with towards Stahl; and of having introduced his system to the public with little or no acknowledgment of the sources from which he has drawn. But surely no one can bring forward such an accusation, who has read with any degree of attention the preface to his Practice of Physic, in which he gives a full account of Dr. Hoffman's system in his own words, and pays complete homage to his merits.

System explained.

According to the more elaborated principles of the Cullenian system, the human body is a congeries of organs regulated by the laws not of inanimate matter, but of life, and superintended by a mobile and conservative power or energy, seated in the brain, but distinct from the mind or soul; acting *wisely* but *necessarily*, for the general health; correcting deviations, and supplying defects, not from a knowledge and choice of the means, but by a pre-established relation between the changes produced, and the motions required for the restoration of health; and operating therefore, through the medium of the moving fibres, upon whose healthy or unhealthy state depends the health or unhealthiness of the general frame: which fibres, he regarded with Stahl, as simple nerves, the muscular filaments being nothing more than their extremities, and by no means possessed of an independent vis insita.

Close association of brain, stomach, and extreme vessels.

The brain therefore, upon this hypothesis, is the primum mobile, but it closely associates in its action with the heart, the stomach, and the extreme vessels. The force of the heart gives extension to the arteries, and the growth of the body depends upon such extension in conjunction with the nutritious fluid furnished by the brain, and deposited by the nerves in the interstices of their own fibres; the matter of which fibres is a solid of a peculiar kind, whose parts are united by chemical attraction. All nervous power commences in the encephalon; it "consists in a motion beginning in the brain and propagated from thence into the moving fibres, in which a contraction is to be produced. The power by which

Energy of the brain what?

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this motion is propagated, we name," says Dr. Cullen, "the ENERGY of the brain; and we therefore consider every modification of the motions produced, as modifications of that energy*." He further lays it down as a law of the economy, that the energy of the brain is alternately excited and collapsed, since every fibrous contraction is succeeded by a relaxation: whence spasms and convulsions are *motus abnormes*, and consist in an irregularity of such alternation. But we must distinguish in this system between the energy of the brain and the vital fluid it sends forth by the nerves; for while the former rises and sinks alternately, the latter remains permanently the same. It is not a secretion, but an inherent principle, never exhausted, and that never needs renewal†.

Alternately excited and collapsed.

Nervous fluid not a secretion.

This hypothesis, in its various ramifications, influenced every part of his theory of medicine, and consequently laid a foundation for his doctrine of fever. The proximate cause of fever was, in his opinion, a collapse or declination of the energy of the brain produced by the application of certain sedative powers, as contagion, miasm, cold, and fear, which constitute the remote causes. This diminished energy extends its influence over the whole system, and occasions an universal debility; but chiefly over the extreme vessels, on which it induces a spasm; and in this spasm the cold fit is supposed to consist.

Fever hence accounted for.

Cullen's proximate cause of fever.

"Such however," to adopt the words of Dr. Cullen himself, "is the nature of the animal economy, that this debility proves an indirect stimulus to the sanguiferous system; whence by the intervention of the cold stage, and spasms connected with it, the action of the heart and larger arteries is increased, and continues so till it has had the effect of restoring the energy of the brain, of extending this energy to the extreme vessels, of restoring therefore their action, and thereby especially overcoming

Energy of the brain restored by debility.

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* Mat. Med. Part. II. Chap. VIII. 349.

† Id. Part. II. Chap. VI. p. 223.

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the spasm affecting them; upon the removing of which, the excretion of sweat, and other marks of the relaxation of the excretories, take place *."

Division of the paroxysm into three stages, not including that of sweat.

This relaxed or perspiratory section of the paroxysm, however, is not regarded by Dr. Cullen as a part of the disease, but as the prelude to returning health. Yet the fit still consists of three stages; the first of debility or diminished energy, the second of spasm, and the third of heat. And though Dr. Cullen had some doubts whether the remote causes of fever might not produce the spasm as well as the atony of the nervous system, yet he inclined to ascribe the second stage to the operation of the first, as he did most decidedly the third to that of the second: and thus to regard the whole as a regular series of actions, employed by the vis medicatrix naturæ for the recovery of health.

System, how far correct.

That fever in its commencement or earliest stage is characterized by debility of the living fibre, or, more closely in the words of Dr. Cullen, by diminished energy of the brain, extending directly or indirectly to the voluntary muscles and capillaries, cannot for a moment be doubted by any one who accurately watches its phænomena. And thus far the Cullenian hypothesis is unquestionably correct; as it appears to be also in supposing the cold stage to be the foundation of the hot, and of the excretion of sweat by which the hot stage is succeeded. But it fails in the two following important points, without noticing a few others of smaller consequence. The spasm on the minute vessels produced by debility takes the lead in the general assault; and, though it forms only a link in the remedial process, is the most formidable enemy to be subdued; and hence all that follows in the paroxysm is an effort of the system to overcome this spasm. The effort at length proves successful: the debility yields to returning strength; the spasm is conquered, and the war should seem to be over. But this

In what respects it fails.

Febrile paroxysms not accounted for after the first.

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* Pract. of Phy. § xlvi.

is not the fact: the war continues notwithstanding; there is nothing more than a hollow truce; debility and spasm take the field again, and other battles remain to be fought. There is nothing in this hypothesis to account for a return of debility and spasm, after they have been subdued; nor to show why spasm should ever in the first instance be a result of debility. "In this system," says Dr. Parr, "the production of spasm by debility, is an isolated fact without a support; and the introduction of the vires medicatrices naturæ, is the interposition of a divinity in an epic, when no probable resource is at hand."

Error in making debility a cause of strength.

The next striking defect that must occur to the attentive reader is, that debility is here made a cause of strength; the weakened action of the first stage giving rise to the increased action and re-excited energy that restore the system to a balance of health: and here again we stand in need of the interposition of some present divinity to accomplish such an effort by such means.

IV. Excitability, or doctrine of Brown.

IV. It is not, therefore, to be wondered at that this system, with all its ingenuity and masterly combination, should not have proved satisfactory to every one. In reality, it did not for many years prove satisfactory to every one in the celebrated school in which it was first propounded. And hence, under the plastic hands of Dr. Brown arose another hypothesis, of which I shall proceed to give a very brief outline, together with the modification it received under the finishing strokes of Dr. Darwin.

Rise of Dr. Brown and his hypothesis.

Dr. Brown, who was at first a teacher of the classics at Edinburgh, and a translator of inaugural theses into Latin, commenced the study of medicine about the middle of life, by a permission to attend the medical schools gratuitously. He was at first strongly attached to Dr. Cullen and Dr. Cullen's system; but an altercation ensued, and he felt an equal animosity towards both. A new and opposite system, if so it may be called, was in consequence manufactured and publicly propounded in a variety of ways. It had great simplicity of principle, and some plausibility of feature; it attracted the curious by its

Its simplicity and plausibility.

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novelty, the indolent by its facility, and every one by the boldness of its speculations. It circulated widely, and soon acquired popularity abroad as well as at home.

Hypothesis explained.

Excitability alternately accumulated and exhausted.

Man, according to Dr. Brown, is an organized machine, endowed with a principle of excitability, or predisposition to excitement, by means of a great variety of stimuli both external and internal, some of which are perpetually acting upon the machine; and hence the excitement which constitutes the life of the machine is maintained. Excitability, therefore, is the nervous energy of Dr. Cullen; and, like that, is constantly varying in its accumulation and exhaustion; yet not, like the nervous energy of Dr. Cullen, under the direction and guidance of a vis conservatrix et medicatrix naturæ distinct from the matter of the organization itself, but passively exposed to the effect of such stimuli as it may chance to meet with, and necessarily yielding to their influence.

Farther illustration.

Upon this hypothesis excitement is the vital flame, excitability the portion of fuel allotted to every man at his birth, and which, varying in every individual, is to serve him without any addition for the whole of his existence: while the stimuli by which we are surrounded, are the different kinds of blasts by which the flame is kept up. If the fuel or excitability be made the most of, by a due temperature or mean rate of blasts or stimuli, the flame or excitement may be maintained for sixty or seventy years. But its power of supporting a protracted flame may be weakened by having the blast either too high or too low. If too high, the fuel or excitability will, from the violence of the flame, be destroyed rapidly, and its power of prolonging the flame be weakened directly; and to this state of the machine Dr. Brown gave the name of indirect debility, or exhausted excitability. If the blasts or stimuli be below the mean rate, the fuel, indeed, will be but little expended, but it will become drier and more inflammable; and its power of prolonging the flame will be still more curtailed than in the former case; for half the blast that would be required to excite rapid destruction antecedently, will be sufficient to excite the same effect now. This state of the machine, therefore, the author of the hypothesis contra-distinguished by the name of direct debility, or accumulated excitability.

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Upon these principles he founded the character and mode of treatment of all diseases. They consist but of two families, to which he gave the name of sthenic and asthenic; the former produced by accumulated excitability, and marked by direct debility; the latter occasioned by exhausted excitability, and marked by indirect debility. The remedial plan is as simple as the arrangement. Bleeding, low diet, and purging, cure the sthenic diseases; and stimulants of various kinds and degrees, the asthenic.

Doctrine of fevers, how divided and treated.

Fevers, therefore, under this hypothesis, like other diseases, are either sthenic or asthenic: they result from accumulated or exhausted excitability. Synocha, or inflammatory fever (cauma under the present arrangement), belongs to the first division, and typhus to the second. Let us try the system by these examples.

The first symptoms of inflammatory fever, like those of all others, evince, as I have already observed, debility or languid action in every organ,—let the debility be distinguished by whatever epithet it may. The vital flame is weak, and scarcely capable of being supported; and yet the fuel is more inflammable than in a state of health, the excitability is accumulated. This scheme, therefore, completely fails in accounting for the origin or first stage of inflammatory, or, in Dr. Brown's own language, sthenic fever.

Wherein the hypothesis fails.

In respect to inflammatory fever.

Typhus pestilens, or jail-fever, is arranged by Dr. Brown as an asthenic disease; and, as such, we have reason to expect debility as characteristic of its entire progress. Yet what is it that produces this debility? The blast or stimulus is here contagion; and the excitability is exhausted by the violence of this blast or stimulus; but there is no means of its becoming exhausted without increasing the excitement: the fuel can only be lessened by augmenting the flame that consumes it. Yet in typhus, according to this hypothesis, the fuel is ex-

In respect to typhus.

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pended, not in proportion as the flame is active and violent, but in proportion as it is weak and efficient. The excitability is exhausted, and the debility increases in proportion as the excitement forbears to draw upon it for a supply. The blast blows hard but without raising the fire, and yet the fuel consumes rapidly. This scheme, therefore, completely fails, in accounting for any stage of low or asthenic fevers of every description.

Inadequacy of Brown's descriptions and arrangement.

Dr. Brown, however, was not a man of much practice; his writings show that he was but little versed in the symptoms of diseases; his descriptions are meagre and confused: and hence, when he comes to assort diseases into the only two niches he allots for their reception, he makes sad work; and maladies of the most opposite characters, and demanding the most opposite mode of treatment, are huddled together to be treated in the same manner, in many cases with no small risk to the patient. Thus, among the sthenic diseases are associated rheumatism, erysipelas, scarlet and inflammatory fever; and, among the asthenic, gout, typhus, apoplexy, and dropsy.

Opposite diseases united.

One principle worthy of notice.

The Brunonian hypothesis, nevertheless, offers one principle that is unquestionably founded on fact, and is peculiarly worthy of attention; I mean, that of accumulated excitability from an absence or defect of stimuli; in colloquial language, an increase of energy by rest. And it is this principle which forms the hinge on which turns the more finished system of Dr. Darwin.

Hypothesis of Darwin.

Spirit of animation modified, doctrine of Cullen.

Sensible of the objection that weighs equally against that part of the system of Dr. Cullen and Dr. Brown, which represents the energy or excitability of the living frame as capable of recruiting itself after collapse or exhaustion, without a recruiting material to feed on; he directly allows the existence of such a material; regards it as a peculiar secretion, and the brain as the organ that elaborates and pours it forth. The brain, therefore, in the system of Dr. Darwin, is the common fountain from which every other organ is supplied with sensorial fluid, and is itself supplied from the blood as the blood is from the food of the stomach.

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All this is intelligible; but when beyond this he endows his sensorial fluid with a mental as well as a corporeal faculty, makes it the vehicle of ideas as well as of sensation, and tells us that ideas are the actual "contractions, or motions, or configurations, of the fibres which constitute the immediate organ of sense*," he wanders very unnecessarily from his subject, and clogs it with all the errors of materialism.

Improvement upon Brown: but chargeable with materialism.

He supposes the sensorial power, thus secreted, to be capable of exhaustion in four different ways, or through four different faculties of which it is possessed: the faculty of IRRITABILITY, exhausted by external stimuli affecting simple irritable fibres: that of SENSIBILITY, exhausted by stimuli affecting the fibres of the organs of sense: that of VOLUNTARITY, exhausted by stimuli affecting the fibres of the voluntary organs acting in obedience to the command of the will: and that of ASSOCIABILITY, exhausted by stimuli affecting organs associated in their actions by sympathy or long habit. By all or any of these means, the sensorial power becomes evacuated, as by food and rest it becomes replenished, often, indeed, with an accumulation or surplus stock of power.

Doctrine explained.

How applied to fever.

In applying this doctrine to fever, he considers its occasional causes, whatever they may be, as inducing a quiescence or torpor of the extreme arteries, and the subsequent heat as an inordinate exertion of the sensorial power hereby accumulated to excess; and, consequently, the fever of Dr. Darwin commences a stage lower than that of Dr. Cullen, or in the cold fit instead of in a collapse of the nervous energy lodged in the brain.

Fails in accounting for the entire paroxysm.

Now, allowing this explanation to account for the cold and hot stages of a single paroxysm of fever, like the spasm of Dr. Cullen, it will apply no farther. For when the sensorium has exhausted itself of its accumulated irritability, the disease should cease. It may, perhaps, be said, that a second torpor will be produced by this

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* Zoonom. Vol. I. Sect. II. ii. 7.

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very exhaustion, and a second paroxysm must necessarily ensue. Admitting this, however, for a moment, it must be obvious that the first or torpid stage only can ensue; for the system being now quite exhausted, the quiescence that takes place during the torpor can only be supposed to recruit the common supply necessary for health; we have no reason to conceive, nor is any held out to us, that this quantity can again rise to a surplus. Yet it must be farther remarked, that in continued fevers we have often no return of torpor or quietude whatever, and, consequently, no means of re-accumulating irritability; but one continued train of preternatural action and exhaustion, till the system is completely worn out. And to this objection the Darwinian hypothesis seems to be altogether without a reply.

Fails in accounting for continued fever.

It is not necessary to pursue this subject further. Other conjectures more or less discrepant from those now examined have been offered, but they have not acquired sufficient notice, or evinced sufficient ingenuity to be worthy of examination.

V. Proximate cause placed in some local disease.

V. There are other pathologists who have referred the proximate cause of fever to a morbid affection of some particular organ, or set of organs associated in a common function. Thus, Baron Haller alludes to several in his day, who ascribed it to a diseased state of the vena cava [*]: Bianchi pitched upon the liver [†], Swalve on the pancreas [‡], Rahn on the digestive organization generally [§], and Dr. Clutterbuck has still more lately, in our own country, and with far more reason and learning, brought forward the brain; to an inflammation of which organ he ascribes fevers of every kind, regarding them merely as so many varieties of one specific disease, originating from this one common cause [‖]. But this is to confound

Vena cava.

Liver.

Pancreas.

Inflamed brain, doctrine of Clutterbuck.

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[*] Bibl. Med. Pr. I. p. 112.

[†] Hist. Hepat. p. 112.

[‡] Pancreas, &c. p. 141.

[§] Briefwechsel, Band. I. p. 150.

[‖] Treatise on Fever, 8vo.

fever with local inflammation, the idiopathic with the symptomatic affection. In treating of inflammation under the ensuing Order, we shall have sufficient opportunities of seeing that an inflamed state of almost any organ, and especially of membranous organs, or the membranous parts of organs, is sufficient to excite some degree of fever or other, and not unfrequently fever of the highest degree of danger from its duration or violence. And hence, the liver, the lungs, the stomach, the intestines, the peritoneum, and the brain, have an equal claim to be regarded as furnishing a proximate cause of fever when in a state of inflammation.

Fevers hereby confounded with inflammation.

A very striking objection to Dr. Clutterbuck's hypothesis, is his limiting himself to a single organ as the cause of an effect which is equally common to all of them. And on this ground it is that Professor Marcus of Bavaria, who has contended with similar strenuousness for the identity of fever and inflammation, has regarded all inflamed organs as equal causes; and is hereby enabled to account, which Dr. Clutterbuck's more restricted view does not so well allow of, for the different kinds of fever that are perpetually springing before us, one organ giving rise to one, and another to another. Thus, inflammation of the brain, according to Dr. Marcus, is the proximate cause of typhus; inflammation of the lungs, of hectic fever; that of the peritoneum, of puerperal fever; and that of the mucous membrane of the trachea, of catarrhal fever.

Fevers identified with inflammations by Marcus.

The general answer, however, to pathologists of every description who thus confound or identify fever with inflammation, whether of a single organ or of all organs equally, is, that though fever is commonly a symptom or sequel of inflammation, inflammation is not uncommonly a symptom or sequel of fevers. And hence, though post-obit examinations, in the case of those who have died of fever, should show inflammation in the brain, the liver, or any other organ, it is by no means a proof that the disease originated there, since the same appearance may take place equally as an effect, and as a cause. Whilst a single example of fever terminating fa-

Objections to an identification of inflammation and fever.

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tally without a trace of inflammation in any organ whatever, and such examples are perpetually occurring, is sufficient to establish the existence of fever as an idiopathic malady, and to separate the febrile from the phlogotic divisions of diseases.

Fever as described by Fordyce.

"A fever, therefore," to adopt the language of Dr. Fordyce, "is a disease that affects the whole system; it affects the head, the trunk of the body, and the extremities; it affects the circulation, the absorption, and the nervous system; it affects the skin, the muscular fibres, and the membranes; it affects the body, and affects likewise the mind. It is, therefore, a disease of the whole system in every kind of sense. It does not, however, affect the various parts of the system uniformly and equally; but, on the contrary, sometimes one part is much affected in proportion to the affection of another part*."

General result. Proximate cause little known.

The result of the whole, as observed at the outset of this introduction, is that we know little or nothing of the proximate cause of fever, or the means by which its phænomena are immediately produced. In the language of Lieutaud applied to the subject before us, they are too often atrâ caligine mersæ; nor have any of the systems hitherto invented to explain this recondite inquiry however ingenious or elaborate, answered the purpose for which they were contrived.

Remote causes of fever.

From the proximate cause of fever let us next proceed to a few remarks upon its REMOTE causes.

Dr. Cullen, who has striven so strongly and so ingeniously to simplify the former, has made a similar attempt in respect to the latter. He first resolves all remote causes into debilitating or sedative powers, instead of being stimulant as they were formerly very generally considered, and as they are still regarded by many pathologists, and especially by those who contemplate fever and inflammation as identic. Whether this position

Regarded by Cullen as sedative powers.

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* On Fever, Dissert. I. p. 28.

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of Dr. Cullen be correct or not, it was necessary for him to lay it down and to maintain it, or he must have abandoned his system of fever altogether, which supposes it to commence in, and be primarily dependant upon debility.

Marsh and human effluvia remote causes.

These sedative or debilitating causes he reduces to two: MARSH and HUMAN effluvia. To the former of which he limits the term miasmata, and the power of producing intermittent fevers, which, with him, include remittent; while to the latter he confines the term contagions, and the power of producing continued fevers. It is true he has found himself compelled to take notice of a few other powers, as cold, fear, intemperance in venery or drinking; but these he is disposed to regard as little or nothing more than sub-agents, or co-agents, scarcely capable of producing fever by themselves.

Auxiliary remote causes of Cullen.

"Whether fear or excess be alone," says he, "the remote cause of fever, or if they only operate either as concurring with the operation of marsh or human effluvia, or on giving an opportunity to the operation of cold, are questions not to be positively answered: they may possibly of themselves produce fever; but most frequently they operate as concurring in one or other of the ways above mentioned*." To cold, however, he attributes a power of engendering fever more freely than to the rest; "yet even this," says he, "is commonly only an exciting cause concurring with the operation of human or marsh effluvia†.

Sufficient weight not allowed to them.

We shall find, as we proceed, that these supplemental causes may admit of addition; as we shall also that they more frequently exist as independent agents than Dr. Cullen is disposed to allow. Yet there can be little doubt that the chief and most extensive causes of fever are human and marsh effluvia.

No great benefit, however, has resulted from endea-

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[*] Pract. of Phys. Book I. Ch. IV. Sect. XCVII.

[†] Id. Sect. XCII.

ORDER I. Pyrectica. Fevers. Remote causes. Distinction between marsh and human effluvia of no great benefit. Miasm and contagion, what?

vouring to draw a line of distinction between these two terms, and hence it is a distinction which has been very little attended to of late years. *Miasm* is a Greek word, importing pollution, corruption, or defilement generally; and *contagion*, a Latin word, importing the application of such miasm or corruption to the body by the medium of touch. There is, hence, therefore, neither parallelism nor antagonism, in their respective significations: there is nothing that necessarily connects them either disjunctively or conjunctively. Both equally apply to the animal and the vegetable worlds—or to any source whatever of defilement and touch; and either may be predicated of the other; for we may speak correctly of the miasm of contagion, or of contagion produced by miasm.

Miasm how applied by Sauvages.

And hence it is that the latter term is equally applied by Sauvages to both kinds of effluvia: "Miasmata, tùm sponte in sanguine enata tùm extus ex aere, in massam sanguineam delata*."

It is a question of more importance whether we have yet the means of realising the distinction between human and marsh miasmata, which Dr. Cullen has here laid down, and which has been generally adopted from the weight of his authority. All specific miasmata may be regarded as morbid ferments, capable of suspension in the atmosphere, but varying very considerably in their degree of volatility, from that of the plague, which rarely quits the person except by immediate contact, to that of the spasmodic cholera of India, which, as observed when treating of it†, works its way, if it be really from a specific poison, in the teeth of the most powerful monsoons, despising equally all temperatures of the atmosphere and all salubrities of district, and travelling with the rapidity of the fleetest epidemy. They are of various kinds, and appear to issue from various sources, but we can only discriminate them by their

All miasmata morbid ferments,

of various kinds and from various sources.

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[*] Nosol. Method. Cl. II. Febr. Theor. Sect. 79.

[†] Class I. Ord. I. Gen. IX. Spec. III.

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specific effects. These are most clearly exemplified in the order of exanthems: in which for some thousands of years they have proved themselves to be of a determined character in all parts of the world where they have been the subject of observation, differing only in circumstances that may be imputed to season, climate, and other external causes, or to the peculiar constitutions of the individuals affected. Thus, the miasm of small pox has uniformly continued true to small pox, and that of measles, to measles; and neither of them has, in a single instance, ran into the other disease, or produced any other malady than its own.

Those of exanthems distinct and specific.

But can we say the same of the supposed two distinct miasms of marsh and human effluvia? Is it equally true that the former has never produced any other than intermittent fever, or the latter any other than continued? And is it also equally true that each of these maladies adheres as strictly to its own character in every age, and every part of the world, as small pox and measles; and that they have uniformly shown as strong an indisposition to run into each other? Dr. Cullen's system is built upon an affirmative to these questions. For it, in fact, allows but two kinds of fever, each as distinctly proceeding from its own specific miasm as any of the exanthems.

Those of marsh and human effluvia not equally so;

but supposed so in Cullen's system.

But this is to suppose what is contradicted by the occurrences of every day: which compel us to confess that, while we cannot draw a line of distinction between marsh and human effluvia from their specific effects, we have no other mode of distinguishing them.

The supposition contradicted by daily facts.

Some writers, indeed, have denied that intermittents, or rather the intermittents of marsh-lands, are produced by a miasm of any kind; for they deny that any kind of miasm is generated there; and contend that the only cause of intermittents, in such situations, is air vitiated by being deprived of its proper proportion of oxygene in consequence of vegetable and animal putrefaction, com-

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bined with the debilitating heat of the autumnal day, and the sedative cold and damp of the autumnal night*. But this opinion is too loosely supported to be worthy of much attention. It is sufficiently disproved by the intermittent described by Sir George Baker, as existing in the more elevated situations of Lincolnshire, while the adjoining fens were quite free from it†. We have as much reason to suppose a febrile miasm in intermittents as in typhus; and in some instances they have been found as decidedly contagious. "That intermittent fevers," says Dr. Fordyce, "produce this matter, or, in other words, are infectious, the author (meaning himself) knows from his own observation, as well as from that of others‡."

Febrile miasm probably the same, produced from both effluvia.

And notwithstanding that it becomes us to speak with diffidence upon a subject respecting which we are so much in want of information, I may venture to anticipate that the evidence to be advanced in the ensuing pages upon the general nature and diversities of fever, will show that there is more reason for believing that the febrile principle produced by marsh and human effluvia is a common miasm, only varying in its effects by accidental modifications, and equally productive of contagion, than that it consists of two distinct poisons, giving rise to two distinct fevers, the one essentially contagious, and the other essentially uncontagious, as contended for by Dr. Cullen.

Proposed elucidation of the subject.

In effect, we shall, I think, perceive that this mysterious subject is capable of being, in some degree, more clearly elucidated and still farther simplified than it has been by preceding pathologists.

Insalubrious effluvium from the decomposition of all dead organized matter.

In the decomposition of all organised matter, whether vegetable or animal, when suddenly effected by the aid of heat and moisture, an effluvium is thrown forth

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* Currie. Trans. Amer. Phil. Soc.

† Medic. Trans. Vol. III. Art. xiii.

‡ On Fever, Diss. I. p. 117.

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that is at all times highly injurious to the health, and, in a closely concentrated state, fatal to life itself. Thus, we are told by Fourcroy, that in some of the burial grounds in France, whose graves are dug up sooner than they ought to be, the effluvium from an abdomen suddenly opened by a stroke of the mattock, strikes so forcibly upon the grave-digger as to throw him into a state of asphyxy, if close at hand; and if at a little distance, to oppress him with vertigo, fainting, nausea, loss of appetite, and tremours for many hours: whilst numbers of those who live in the neighbourhood of such cemeteries labour under dejected spirits, sallow countenances, and febrile emaciation*. This effluvium is from the decomposition of animal matter alone; but the foul and stinking harmattan, when it rushes from the south-east upon the Guinea coast, loaded with vegetable exhalations alone, with which it impregnates itself while sweeping over the immense uninhabitable swamps and oozy mangrove thickets of the sultry regions of Benin, triumphs in a still more rapid and wasteful destruction; insomuch that Dr. Lind informs us, that the mortality produced by this pestilential vapour in the year 1754 or 1755 was so general, that in several negro towns the living were not sufficient to bury the dead; and that the gates of Cape Coast Castle were shut up for want of centinels to perform duty; blacks and whites falling promiscuously before this fatal scourge.

Harmattan on the Guinea coast.

In this case, as in the preceding, the vapour is always accompanied with an intolerable stench from the play of affinities between the different gasses that are let loose by the putrefactive decomposition; and hence it is impossible to affirm that the mortality thus produced is the result of any single or specific miasm operating to this effect. But it shows us that the general effluvium from the decomposition of all dead organized matter, whether animal or vegetable, is equally deleterious to health and life.

In these instances accompanied with a stench which itself may be injurious to the health.

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[*] Elemens de Chimie, Art. Putrefaction de Substances Animal. tom. IV.

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The decomposition, however, to which we are, on the present occasion, chiefly to direct our attention, is of a mixed kind; for the marsh and oozy soil of inhabited countries is necessarily a combination of animal and vegetable matter.

The decomposition not injurious when slow. What agents quicken and render it capable of generating a febrile miasm.

If this decomposition take place slowly, as in cold or dry weather, and more particularly in a breezy atmosphere, not the slightest evil is sustained during its entire process. And hence, in order to render it mischievous, and particularly in order to render it capable of producing fever of any kind, it is necessary that it should be assisted by the co-operation of certain agents, many of which we do not seem to be acquainted with, but which, so far as we are capable of tracing them, appear to be auxiliary to the general process of putrefaction, as warmth, moisture, air, and rest or stagnation.

Where their influence is feeble the result is intermittents.

The simplest and slightest fever that is produced under the joint influence of these powers, is the intermittent: and we find these produced where their joint influence is but feeble, and where it exists, perhaps, in its lowest stage, as in the favourable climate of our own country; where we are not often overloaded with equinoxial rains, and have not often to complain of a sultry sky or a stagnant atmosphere. Even here, however, we perceive a change in the character of the intermittent at different seasons: for while in the spring it usually exhibits a tertian type, in the autumn we find it assume a quartan. And as these can only be contemplated as varying branches of the same disease, we have thus far, at least, reason to regard it as produced by a common febrile miasm, modified in its operation by a variation in the relative proportion which its auxiliaries, known and unknown, bear to each other during the vernal and autumnal seasons; coupled, perhaps, with some degree of change produced by the same seasons in the state of the human body.

Fevers varied in their type and power by the varying influence of the febrile auxiliaries on the febrile miasm: and the varying state of the human body.

If from our own country we throw our eyes over the globe, we shall find in every part of it, where the

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Remote causes. The more vigorous or abundant the auxiliaries, the severer the fever.

same causes exist, that in proportion as they rise in potency they produce a fever of a severer kind, more violent in its symptoms, and more curtailed in its intervals, till we gradually meet, first with no distinct intervals, and at length with no intervals whatever; and hence perceive the remittent progressively converted into intermittent and continued fevers. And that here we have still the same miasm merely modified in its operation by the varied action of its auxiliary powers on the constitution of the individuals it attacks, is as clear as in the former case; because, in many attacks, we see different individuals touched by the very same influence, exhibit all the varieties now alluded to, and intermittent, remittent, and continued fevers coexisting in every diversity of violence; commencing with either of these forms; keeping true to the form with which they commenced; or changing one form for another. Such more particularly was the fact in the highly malignant yellow-fever of Antigua in 1816, as fully and admirably described by Dr. Musgrave*, and to which we shall have occasion to refer more particularly in its proper place.

Influenced also, by the constitution of the patient.

Hence remittent and continued, as well as intermittent fevers.

Illustrated by the yellow fever at Antigua in 1806.

This disease first showed itself during sultry weather and a quiet atmosphere, in a swampy part of the island, among a ship's crew lately arrived, but from a healthy vessel, and themselves in good health at first landing. It soon spread widely, and at length indiscriminately in town and country, among all ranks and conditions, and situations, blacks as well as whites, the oldest settlers as well as the newest comers. The head was, in some cases, chiefly affected; in others the stomach, the liver, or a still different organ. Hiccough and black vomit were common towards the close of the disease, though many died without it; and recovery was *no exemption* from a second attack.

Dr. Musgrave asserts farther, that, during the whole of this fatal epidemy, there was no instance of its being

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* Medico-Chirurg. Trans. Vol. IX. p. 92.

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received by contagion. The argument however, which he offers upon this subject is not quite convincing. Yet admitting the fact to be as he states it, we have an additional proof, if proof were wanting, firstly, that when the animal frame has been previously debilitated or relaxed, as in the case of a ship's crew that has been long voyaging in high latitudes and living on salted provisions, it suffers sooner and more severely than where no such relaxation has taken place: and, secondly, that by a long and gradual exposure to the influence of febrile miasm, however produced, whether from the living human body or from dead organized matter, the animal frame becomes torpid to its action, as it does to the action of other irritants. Whence prisoners confined in jails with typhous miasm around them, as well as those who have long stood the climate in the West Indies, receive the contamination to which they are exposed far less rapidly than strangers.

Debilitated subjects suffer sooner and more severely when newly exposed to miasm.

Explanation of this fact.

Remarks on Musgrave's statement that the Antigua fever was not contagious.

The argument, however, of Dr. Musgrave upon this point we had said is not quite satisfactory; because he admits that those who were about the patients, and paid no attention to personal cleanliness, did not wholly escape; but then, says he, they escaped *as generally* and were *not more frequently* affected than those who never entered the doors of an infirmary. Now as all ranks and conditions, blacks and whites, even far off in the country, were affected indiscriminately, we have no reason to expect that those whose habits had rendered them peculiarly torpid to the action of the febrile miasm should be more frequently affected than others. The very admission that they were as much so, seems to imply that the febrile miasm was attacking them in some new mode, against which they were not guarded by previous habit. Nor is it easy to conceive by what means the local disorder of the coast could be converted into so extensive an epidemy unless through the medium of contagion.

I have dwelt the longer upon this subject, because it is desirable to reconcile as much as possible the con-

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flicting testimony of respectable writers, who, having adopted different theories, are insensibly led to support them by inaccordant descriptions of the same disease.

In direct opposition to Dr. Musgrave, Dr. Bancroft*, and a host of distinguished writers who think with them, we are told by Mr. Pym, that the Bulam fever, admitted by Dr. Musgrave to be the same as the above, not only is contagious, but is never introduced into any fresh region but by contagion†. While Dr. Rush, speaking of the yellow fever of Philadelphia of 1793, asserts, that "there were for several weeks two sources of infection, viz. exhalation and contagion. The exhalation," says he, "infected at the distance of three and four hundred yards, while the contagion infected only across the streets. After the 12th of September, the atmosphere of every street in the city was loaded with contagion." He adds, that a few caught the disease who had it before: thus taking a middle course between Dr. Musgrave, who tells us that recovery affords "*no* exemption from a second attack," and Mr. Pym, who affirms that the fever "attacks the human constitution but once." In the fever of Cadiz of the year 1800, Sir James Fellowes, who coincides in the view adopted by Mr. Pym, asserts, not only that it was contagious and propagated only by contagion, but that "the air from its stagnant state became so vitiated that its noxious qualities affected even animals: canary birds died with blood issuing from their bills, and in all the neighbouring towns, which were afterwards infested, no sparrow ever appeared‡."

Atmosphere so contaminated at Cadiz as to affect birds.

I do not remember to have seen this last fact so directly affirmed by any modern writer; but it is not contradicted in the course of the controversy, and is in

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* Essay on the Disease called Yellow Fever.

† Observations upon the Bulam Fever, which has of late years prevailed in the West Indies, on the coast of America, at Gibraltar, Cadiz, and other parts of Spain, &c. in 8vo. 1815.

‡ Reports of the Pestilential Disorder of Andalusia, which appeared at Cadiz in the years 1800, 1809, 1810, and 1813, &c. 8vo. 1815.

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perfect coincidence with the state of the air during the plague in most places*, and particularly at Athens, as described by Thucydides: τεκμήριον δὲ τῶν μὲν τοιούτων ὀρνίθων ἐπίλειψις σαφὴς ἐγένετο· καὶ οὐχ᾽ ἑωρῶντο οὔτε ἄλλως, οὔτε περὶ τοιοῦτον οὐδέν. Οἱ δὲ κύνες μᾶλλον αἴσθησιν παρεῖχον τοῦ ἀποϐαίνοντος, διὰ τὸ ξυνδιαιτᾶσθαι. Whence Lucretius, who does but little more than translate Thucydides:

Nec tamen omnino temere illis solibus ulla
Comparabat avis, neque noxia secla ferarum
Exibant sylvis; languebant pleraque morbo,
Et moriebantur; cum primis fida canum vis
Strata animam ponebant in omnibus ægre:
Extorquebant enim vitam vis morbida membris ‡.

Nor longer birds at noon, nor beasts at night
Their native woods deserted; with the pest
Remote they languish'd and full frequent died.
But chief the dog his generous strength resign'd,
Tainting the high-ways, while the ruthless bane
Through every limb his sick'ning spirit drove.

Hence the same fever produced by a like miasm issuing both from human and marsh effluvia.

There can be no question, therefore, that the fever before us was in some regions contagious, or produced from human effluvium; as in other regions, and under other circumstances, it was produced from marsh effluvium. The facts brought forward by Sir James M'Grigor § upon this subject are decisive indeed of themselves. It is true that Sir James Fellowes and Mr. Pym contend, that it was produced by contagion alone, but they completely fail in establishing the question of its importation by a ship's crew from Spanish America; and as there is no doubt in the mind of those who have not buckled on the armour of controversy, that this fever was the common fever of the Mediterranean coasts, so well described by Dr. Cleghorn, and which, under different names and with different degrees of violence commits its ravages mostly about the autumnal

And hence the fever of the Mediterranean and American coasts, in the East and West Indies, one and the same, only varied by incidental circumstance.

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* Diemerbr. De Peste, Cap. VI. Van Swieten, ex prof. Sorbait, in sect. 1407.

† Hist. XI. 52.

‡ De Rer. Nat. Lib. VI. 1117.

§ Medical Sketches, passim.

Remote causes.

equinox, from the swampy shores of the Nile to the oozy banks of the Tiber, and which is often found as destructive in the Campania as in the East or West Indies, there can be no longer any doubt of the operation of one and the same miasm or febrile principle in all these cases; sometimes issuing from the effluvia of the living body, and sometimes from that of dead organized matter: and, consequently, that the whole of that part of Dr. Cullen's system is erroneous which supposes a different specific principle of fever to be generated in each; the one distinguished by being limited to the production of uncontagious intermittent fever, and the other to that of contagious continued fever. And it is of the more importance that the error of this doctrine should be pointed out, since it has proved the very ground-work of that altercation which has prevailed upon the subject before us. For the writers on both sides having equally drunk from the Cullenian fountain; and, being equally impressed with the truth of this doctrine, have only warred with each other in support of Dr. Cullen's distinction; and hence those who have so clearly witnessed the origin of the fever from marsh effluvium, that they have been compelled to acknowledge this as its source, have felt themselves compelled at the same time to deny that it is contagious; while those who have as clearly witnessed its contagious power, have as forcibly felt themselves compelled to deny that it has sprung from marshy miasm.

Hence Cullen's doctrine on this subject erroneous.

And the ground of the altercations that have arisen.

In typhus, or the fever that originates in crowded jails and other thronged and noisome abodes, there is no longer a question concerning its human origin and contagious property. But typhus does not differ more widely in its symptoms from some of the modifications of the fever we have just contemplated, than such modifications do from others of the same fever, varied by the varying power of its co-operating agents. And hence, we have reason to conclude that typhus also is generated from the same common febrile miasm, modified in its action by influential contingencies.

How far typhus approximates to yellow fever.

A modified offspring from the same common miasm.

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Yellow fever itself often typhous from the first.

In effect the yellow fever itself, under peculiar circumstances, assumes something of a typhous character even in its first origin, and where the source has unquestionably been marsh miasm. This was especially the case with the asthenic remittent at Breslaw in 1757, and is still oftener found in the remittent that takes place along the Gambia, after rain in the spring or early part of the summer, when there is less organized matter remaining on the surface of the earth to be decomposed, and what there is, has been acted upon by a lower temperature and a shorter duration of heat than in the autumn. " In the month of June," says Dr. Lind, " almost two thirds of the white people were taken ill. Their sickness could not well be characterized by any denomination commonly applied to fevers: it however approached nearest to what is called a *nervous fever*, as the pulse was always low, and the brain and nerves seemed principally affected. It had also a tendency to frequent remissions." The patients were often attacked with a delirium, and ran into the open air, where they received benefit from an affusion of heavy rains upon their naked bodies. " The delirium however, it seems, soon returned; they afterwards became comatose, their pulse sunk, and a train of nervous symptoms followed; their skin often became yellow." And even where the disease has commenced with symptoms of great excitement, and an intermittent type, it is so much disposed, under peculiar incidents, as great fatigue, disappointment, and short provisions, to run into a typhus fever, as at Walcheren and during the retreat of the British army from Corunna, that many nosologists have thought themselves called upon to make this form a distinct variety or even species of fever, which they have usually distinguished by the name of typhus *icterodes*, or yellow typhus.

But more frequently in its progress.

Both originate in similar situations.

In like manner, where the yellow fever has commenced originally from contagion, or in other words from a decomposition of human instead of marsh miasm, it has been under the very same auxiliaries of filth, poverty, crowded numbers, and a stagnant atmosphere, that give

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rise to typhus. Thus the fever of Malaga of 1803, uniformly admitted to be of the same kind as that of Cadiz in 1800, spread first, according to professor Arejula's description, through the narrow, crowded, and offensive lanes of the district de Perchel: and that of Cadiz itself, according to Sir James Fellowes, made its earliest appearance in the Barrio de Santa Maria, a part of the town in which the streets are narrower, less ventilated and cleanly than any other part, and where the poorer inhabitants, dirty in their persons and crowded in filthy rooms, generally live together. It is true that it was conjectured by many persons, and among others by both these writers themselves, that the contagion did not originate in either of these situations, but was introduced into them by foreign shipping; but such a conjecture has, in the first place, no evidence for its support, and, in the second, the mere evidence of the captain of the ship referred to was directly contradicted by the chief physician of the hospital at the Havannah, who was on board the whole time and was privy to the cases referred to. In effect, a cause thus secondary seems to have been superfluous, for the local causes enumerated by Sir James Fellowes and professor Arejula appear to have been perfectly adequate. They are, as near as may be, the same as those which operate so fatally in the miserable and crowded cabins of Ireland; and if the fever had shown itself at a cooler season of the year, and the subjects of it had been still more broken down in constitution by mental dejection and low diet, it would probably from the first have assumed a continued and typhous character, instead of a remittent and more energetic.

Cause of their difference.

Miasm from human effluvium and dead organized matter decomposed, essentially the same but modified in some of its properties.

The febrile miasm then, generated by a decomposition of human effluvium and of dead organized matter, appears to be essentially the same, modified alone in one or two of its qualities by the co-operation of the heat, moisture, stagnant atmosphere, and perhaps some other unknown agents, that are necessary to give it birth or activity.

The chief difference produced in this miasm under these distinct modes of origin is, that when gene-

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rated by the decomposition of effluvium issuing from living human bodies, it is less volatile, and has at the same time a power more directly exhausting, or debilitating the sensorial energy, than when generated by the decomposition of dead organized matter. Whence fevers originating in jails or other confined and crowded scenes contaminate the atmosphere to a less distance than those from marshes or other swamps, but act with a greater degree of depression on the nervous system when once received into it.

Impure air necessary for an extensive spread.

In whatever mode derived, the remark of my excellent and distinguished friend Dr. Hosack will still hold, not indeed that it is altogether incapable of taking effect in a pure atmosphere, but that "an impure atmosphere is indispensably necessary to extend the specific poison*.". And I should also fully concur with him in censuring the application of the term *epidemic* to any of the febrile diseases hereby produced, provided this epithet were usually confined, which I am not aware of, to disorders supposed to result from some primary intemperament of the atmosphere itself.

Why an impure atmosphere necessary.

Why a corrupt state of the atmosphere should be necessary to the general action of the febrile miasm, is a question which still remains to be discussed. Dr. Hosack supposes that the latter "produces its effects by some chemical combination with the peculiar virus secreted from the deceased body," and which is floating in the atmosphere: of the nature of which virus, however, he has not given us any information; while Dr. Chisholm conceives that it is the impurity of the atmosphere itself which operates by "increasing the susceptibility of the system to the action of the poison introduced†." But to this explanation Dr. Hosack successfully rejoins, "that the predisposition of those who are most exposed to such impure air is less, while those who reside in the pure air

Explanation of Hosack.

Of Chisholm.

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* Observations on the Laws governing the communication of contagious Diseases, 4to. New York, 1815.

† Letter to Haygarth.

of the country are most liable to be infected when exposed to the contagion."

Remote causes: Explanation offered by the author.

The true state of the case appears to me as follows. In a pure atmosphere, the miasmic materials easily become dissolved or decomposed; but slowly and with great difficulty, perhaps not at all, in a corrupt atmosphere, already saturated with foreign corpuscles. In a state thus crowded, moreover, they less readily disperse or ascend beyond their proper periphery of action; and perhaps by their tenacity adhere to bodies more ponderous than themselves, and thus loiter for a still longer period within the stratum of human intercourse.

Objections avoided by this explanation.

Upon this explanation it is not necessary to suppose that febrile miasm has a power either of concentrating its virulence, so as to render it more active; or of multiplying its own form, so as to increase its numerical strength; against both which views, there are weighty objections. Every distinct particle thus suspended, and withheld from dissolution, becomes an active individual in the field of battle, and is almost sure to grapple with its man. So that hereby alone we have a force equal to any degree of mortality that can be conceived.

Origin and laws of febrile miasm.

While then the remote causes of fever are of different kinds, its chief and most effective is febrile miasm; the origin and laws of which, so far as we are at present acquainted with it, may be expressed in the following corollaries:

1. The decomposition of dead organized matter, under the influence of certain agents, produces a miasm that proves a common cause of fever.

2. The whole of these agents have not yet been explored; but so far as we are acquainted with them, they seem to be the common auxiliaries of putrefaction, as warmth, moisture, air, and rest, or stagnation.

3. The nature of the fever depends, partly upon the state of the body at the time of attack; but chiefly upon some modification in the powers or qualities of the fe-

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brile miasm, by the varying proportions of these agents in relation to each other, in different places and seasons. And hence, the diversities of quotidians, tertians, and quartans; remittent and continued fevers, sometimes mild and sometimes malignant.

4. The decomposition of the effluvium transmitted from the living human body, produces a miasm similar to that generated by a decomposition of dead organized matter, and hence, capable of becoming a cause of fever under the influence of like agents.

5. The fever thus excited, is varied or modified by many of the same incidents that modify the miasmic principle when issuing from dead organized matter; and hence, a like diversity of type and vehemence.

6. During the action of the fever thus produced, the effluvium from the living body is loaded with miasm of the same kind, completely elaborated as it passes off, and standing in no need of a decomposition of the effluvium for its formation. Under this form it is commonly known by the name of febrile contagion. In many cases, all the secretions are alike contaminated; and hence, febrile miasm of this kind is often absorbed, in dissection, by an accidental wound in the hand, and excites its specific influence on the body of the anatomist.

7. The miasm of human effluvium is chiefly distinguishable from that of dead organized matter, by being less volatile, and having a power of more directly exhausting or debilitating the sensorial energy, when once received into the system. Whence the fevers generated in jails or other confined and crowded scenes, contaminate the atmosphere to a less distance than those from marshes and other swamps, but act with a greater degree of depression on the living fibre.

8. The more stagnant the atmosphere, the more accumulated the miasmic corpuscles from whatever source derived; and the more accumulated these corpuscles, the more general the disease.

9. The miasmic material becomes dissolved or decom-

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posed in a free influx of atmospheric air; and the purer the air the more readily the dissolution takes place: whence, è contrario, the fouler as well as more stagnant the air, the more readily it spreads its infection.

10. Under particular circumstances, and where the atmosphere is peculiarly loaded with contamination, the miasm that affects man, is capable also of affecting other animals.

11. By a long and gradual exposure to the influence of febrile miasm, however produced, the human frame becomes torpid to its action, as it does to the action of other irritants; whence the natives of swampy countries, and prisoners confined in jails with typhous contamination around them, are affected far less readily than strangers; and, in numerous instances, are not affected at all.

12. For the same reason, those who have once suffered from fever of whatever kind hereby produced, are less liable to be influenced a second time; and, in some instances, seem to obtain a complete emancipation.

Doctrine of crises.

It only remains to offer a few remarks upon the DOCTRINE OF CRISES; or that tendency which fevers are by many supposed to possess, of undergoing a sudden change at particular periods of their progress.

Crisis, what in the present day.

A sudden and considerable variation of any kind, whether favourable or unfavourable, occurring in the course of the general disease, and producing an influence on its character, is still loosely expressed by the name of crisis. The term is Greek, and pathologically imports a separation, secretion, or excretion of something from the body; which was in truth the meaning ascribed to it when first employed, agreeably to the hypothesis of concoction which we have just considered. The original hypothesis is abandoned; but the term is still continued in the sense now offered.

Primary meaning and use of the term.

Crises often occurring in the modern sense of the term.

That changes of this kind are perpetually occurring in the progress of continued fevers, must, I think, be admitted by every considerate and experienced practitioner.

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Nothing is more common than to behold a patient suddenly and unexpectedly grow decidedly better or worse in the progress of a fever of almost any kind, and pass on rapidly towards a successful or an unsuccessful termination.

Whether in the ancient sense, or on critical days.

But the important question is, whether there be any particular periods in the progress of a fever in which such changes may be expected? Hippocrates conceived there were; he endeavoured to point out and distinguish them by the name of critical days. Asclepiades and Celsus denied the existence of such periods; and the same diversity of opinion has prevailed in modern times.

Not easy to determine in cold climates.

It is not very easy to determine upon the subject in the present day, and especially in our own country. For, first, fever, like many other complaints, may have undergone some change in its progress from a like change in the nature of its remote causes, or in the constitution of man. And, next, it seems to be generally allowed, that sudden transitions, whether regular or irregular, are more apt to take place in almost all diseases in warm than in cold climates. On these grounds, it is probably a subject which will never become of great practical importance at home. Yet it is well worthy of attention as a question of history, and which may yet be of great importance to many parts of the world.

Periodical revolutions in all the phænomena on the animal economy.

If we examine the phænomena of the animal economy, as they occur in a natural series, we shall find that they are in almost every instance governed by a periodical revolution. A man, in a state of health and regular habits, generally becomes exhausted of sensorial power within a given period of time, and requires a periodical succession of rest: his appetite requires a periodical supply, and his intestines a periodical evacuation. This tendency equally accompanies and even haunts him in disease; he cannot disengage himself from it. Gout, rheumatism, mania, rapidly and pertinaciously establish to themselves periods of return. The hemorrhoidal

Examples of this remark.

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discharge often does this; and the catamenia constantly. The same occurs in fevers, but especially in intermittents; for the quotidian, the tertian, the quartan, have, upon the whole, very exact revolutions. And, though accidental circumstances may occasionally produce a considerable influence on every one of these facts, whether morbid or natural, the tendency to a revolutionary course is clear and unquestionable.

They support the observations of Hippocrates upon critical days.

Now, although Hippocrates has not appealed to this reasoning, it forms a foundation for his observations: and when stript of the perplexities that encumber his writings upon this subject, partly produced by erroneous transcripts, and in a few instances perhaps by his own irresistible attachment to the Pythagorean hypothesis of numbers, he may be regarded as laying down the following as the critical days of continued fever: the 3d, 5th, 7th, 9th, 11th, 14th, 17th, 20th; beyond which it is not worth while to follow the series, for it is not often that they extend further.

Critical days of Hippocrates.

In other parts of his works, he regards also the 4th and 6th and even the 21st as critical days; so that in the first week, every day, after the disease has fully established itself, evinces a disposition to a serious change; in the second week, every other day; and in the third week, every third day. It is not easy to determine why the 21st day should be a critical day as well as the 20th. Various conjectures have been offered upon the subject; by some, it has been regarded as a mistake in the Greek copy, and by others, as a piece of favouritism in Hippocrates for this number, in consequence of its being an imperfect one in the Pythagorean philosophy, as the commencement of a septenary.

Hippocrates put to the test by De Haen.

De Haen with rigid and patient assiduity has put Hippocrates to the test upon these data; for he has accurately analyzed Hippocrates's own journal of the numerous cases of fever he has most industriously collected and recorded, and finds the positions, in most instances, to be strictly justified; and that out of 168

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terminations of fever, not less than 107, or more than two-thirds, happened on the days denominated critical, not reckoning the 4th, 6th, or 21st, and that the 4th and 6th were very frequently critical. There are a few anomalies; but it is not necessary to notice them, because they are easily referable to accidental causes, similar to those that retard or accelerate the paroxysm of intermitting fevers.

Critical days of Hippocrates accounted for upon the types of different intermittents.

Now, admitting the Hippocratic table to be true, the continued fever, in its progress, is measured by the various types exhibited by intermittent fevers. Thus, the quotidian prevails through the first seven days; there is on each day a slight exacerbation, and no one day is more critical than any other. After this period the tertian type commences, and runs through the ensuing week; the principal changes occur on the 9th and 11th days, and would occur on the 13th, but that the quartan type now assumes its prerogative; and the principal transitions after the 11th, take place on the 14th, instead of on the 13th; on the 17th; and on the 20th. Dr. Cullen, who has examined this subject with great attention, and simplified it from many of its difficulties, directly asserts that his own experience coincides with the critical days of Hippocrates; and Dr. Fordyce, who scarcely does justice to Cullen upon other points, unites with him upon the present, and justly compliments him upon his ingenious examination and explanation of the Greek distribution of critical days. It is, nevertheless, admitted on all hands, that the order of succession is far less distinct as well as less regular in cold than in warm climates; and that it requires a thoroughly attentive and practised eye to notice these changes in our own country, or indeed in any part of northern Europe. And hence, Craanen says, it is lost time to look for them *; Stoll, that they are only to be found in inflammatory fevers †; and Le Roy,

The subject confirmed by Cullen's experience,

and Fordyce's.

Still less distinct in cold than in hot climates.

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* De Homine.

† Rat. Med. Part IV. p. 283.

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that the supposed critical days have no influence and can lead to no prognosis or peculiarity of practice *. Why the first week of a fever should incline to a quotidian type rather than to a tertian, or the second to a tertian rather than to a quartan, we know no more than we do why fevers should ever intermit, or at any time observe the distinctions of different types. We are in total ignorance upon all these subjects. We see, moreover, that intermitting fevers, whether quotidian, tertian, or quartan, have their paroxysms recur regularly in the day time; the quotidian in the morning, the tertian at noon, and the quartan in the afternoon; and that in no instance do the paroxysms take place at night: and we see also that in continued fevers, the exacerbations uniformly take place later in the day, than the paroxysms of the latest intermittent; for these rarely occur earlier than between five and six o'clock in the evening, while the paroxysms of the quartan return commonly before five. Of these interesting and curious scenes we are spectators; but we are nothing more; for we are not admitted to the machinery behind the curtains.

Crises referred to the influence of the heavenly bodies.

Their influence in the opinion of the ancients:

By some pathologists the source of these phænomena is sought in the influences of the heavenly bodies, and especially in those of the sun and the moon. In ancient times these luminaries were supposed to produce an effect on all diseases, and especially on mania, epilepsy, catamenia, and pregnancy. And when the Newtonian philosophy first illumined mankind with the brilliant doctrine of universal attraction, Dr. Mead stepped forth into the arena, and revived and supported the ancient doctrine with great learning and ingenuity. And as an ingenious conjecture and possible fact, of which no practical use could be made, it was contemplated till towards the close of the last century: about which time Dr. Darwin,

of Darwin;

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* Du Prognostic dans les Maladies Aigues, 8vo. Montpel. 1778.

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of Dr. Balfour.

by interweaving it with his new hypothesis, once more endeavoured to raise it into popular notice, and give it an air of serious importance. Dr. Balfour, of British India, however, has still more lately brought it forward as a doctrine capable of direct proof, and as peculiarly affecting the progress of fevers. His opinion, which he endeavours to support by weighty facts and arguments, is, that the influence of the sun and the moon, when in a state of conjunction, which is named sol-lunar influence, produces paroxysms or exacerbations in continued fever in all cases in which a paroxysmal diathesis (for such is his expression) exists; and as this influence declines, in consequence of the gradual separation of these luminaries from each other, and their getting into a state of opposition, a way is left open to the system for a critical and beneficial change, which is sure to take place provided the critical disposition is at this time matured. In other words, paroxysms and exacerbations in fever may be expected to take place (and do in fact take place) at spring-tides, and crises at neap-tides.

General remarks.

This is a new view of the influence of the heavenly bodies upon the human frame; and a view which, though feebly supported by facts, is advanced with all the dogmatism of an established science. There is, nevertheless, more in medical astrology than is, perhaps, generally supposed; it is an important branch of meteorology, and, as such, is well worth studying. Nor can there, I think, be a question in any impartial mind, that, *under certain circumstances*, and especially in tropical climates, many diseases are influenced by lunation, as we are sure they are, in all climates, by insolation. The concurrent observations of a host of candid and attentive pathologists, who have been witnesses of what they relate, are sufficient to impress us with this belief: but till we know more fully what these *circumstances* are, we cannot avail ourselves of their remarks, and can only treasure them up as so many isolated facts. And hence it is, that in no age or country whatever, has the study been turned to any prac-

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tical advantage, expedited the cure of a disease, or enabled us to transform the type or interval of one kind of fever into that of another. Nor is it any exclusive reproach to the art of medicine that it should be so; for of all the subdivisions of general philosophy, there is none so little entitled to the name of a science as meteorology itself. And till the naturalist has explained the variations of the barometer, the physician need not blush at being incapable of turning to account the supposed influence of the planets, or of unfolding the origin or tracing the capricious courses of epidemies and pestilences.

GENUS I.

EPHEMERA.

Diary Fever.

ONE SERIES OF INCREASE AND DECREASE; WITH A TENDENCY TO EXACERBATION AND REMISSION, FOR THE MOST PART APPEARING TWICE EVERY TWENTY-FOUR HOURS.

GEN. I. The simple fever of Fordyce.

THIS is the simplest form in which fever at any time makes its attack; and hence Dr. Fordyce has distinguished it by the name of SIMPLE FEVER. For the purpose, however, of entering into the full character, not only of the present but of all the subsequent genera, and their respective species, it is necessary to bear in mind, that the ordinal definition forms a part of that character, and is essentially included in a less or greater degree in all the subdivisions that appertain to it.

The term has been erroneously applied.

I have said that the ephemera rarely exceeds a duration of twenty-four hours. Some practitioners, however, have called by this name a fever that has extended for three days; and Sauvages has arranged this mode of fever under his own genus of ephemera. But this is to confound different species under one generic name. Fordyce asserts, that he has often seen the ephemera commence its attack with all the essential appearances of fever, and terminate in eight, ten, or twelve hours*. And

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* On Simple Fever, Diss. I. p. 33.

Gen. I.
Ephemera.
Diary fever.

hence, in defining ephemera, the symptom of duration ought not to exceed the limit here allotted to it.

Stages of diary fever, three.

In this simple shape of the disease, the pathognomic symptoms are few and striking; for, however violent, it is confined to a single paroxysm of three distinct stages, shivering or languor, heat, and perspiration, each most probably dependent on the other, and ceasing, when true to itself, after having followed up the movements of the animal frame through a single diurnal revolution. The cold stage, however, is often scarcely perceptible, and sometimes altogether imperceptible, the general languor taking place without it.

The genus exhibits two common and very distinct species; and if the ephemera *sudatoria* of Sauvages, the sweating-sickness or English plague of other authors, be regarded as belonging to it, as unquestionably it ought, it will then afford us another after the manner following:

1.	EPHEMERA MITIS.	MILD DIARY FEVER.
2.	——— ACUTA.	ACUTE DIARY FEVER.
3.	——— SUDATORIA.	SWEATING-FEVER.

SPECIES I.

EPHEMERA MITIS.

Mild Diary Fever.

WITHOUT PRECEDING RIGOR; LASSITUDE AND DEBILITY INCONSIDERABLE; PAINS OBTUSE, CHIEFLY ABOUT THE HEAD; HEAT AND NUMBER OF THE PULSE INCREASED SLIGHTLY: PRESPIRATION BREATHING AND PLEASANT.

Gen. I.
Spec. I.
Causes.

THE common exciting causes are, excess of corporeal and especially of muscular exertion; long protracted

GEN. I. SPEC. I. Ephemera mitis. Mild diary fever.

study; violent passion; suppressed perspiration; sudden heat or cold.

The fever frequent from one or other of these causes.

There are few persons who have not felt this species of diary fever at times, from one or other of the causes just enumerated. When a man has worked himself up into a violent and long continued fit of wrath, whether there have been reason or no reason, and more especially in the latter case; when he has taken a long and fatiguing journey on foot, walking with great speed, and suffering beneath great heat and perspiration; or when he has devoted the whole of the day to a particular study, so profound and abstracting as to exhaust almost the entire stock of sensorial power that can be drawn from other parts of the system, at the single outlet of the attention; —and when, beyond this, he still urges his abstruse and protracted train of thought into a late hour of the night or the morning—there is a general irritation or undue excitement produced, that simple rest cannot at once allay; his sleep is short, hurried, and interrupted if he sleep at all; he yawns, stretches his limbs, turns himself again and again in his bed for an easy, perhaps for a cool place, for his skin is hot and dry; but for a long time he turns in vain. The morning strikes upon his eyes, but he has had little sleep and no refreshment: he is indisposed to leave his bed; and if he rise, he is still feverish, and unfit for business. He passes the day in disquiet, which perhaps increases towards evening; but at night he feels a moisture breaking forth over his skin, and comfortably succeeding to the heat and dryness that have thus far distressed him; he recovers perhaps even while sitting up; but if, as he ought to do, he goes to an early bed, a quiet and refreshing sleep supervenes, and he wakes to the health he before possessed.

Description.

It is not easy to explain why the febrile paroxysm should be more disposed to close its career sometimes towards the evening, but more generally later at night, except for the reason, whatever that reason may be, that all fevers are far more apt to commence their paroxysms in some part or other of the day-time, and

Gen. I. Spec. I. Ephemera mitis. Mild diary fever.

especially intermittents, and consequently to drop them as the day declines. Thus the quotidian makes its assault in the morning, the tertian at noon, and the quartan in the afternoon: as though the diurnal revolution were somewhat regularly divided between febrile attack and febrile cessation or truce. It is possible indeed, that a fever of any kind may open its onset at any hour, but this is so contrary to the ordinary rule, that Dr. Fordyce affirms from his own observation that ten fevers commence in the day to one at night.

Medical treatment.

The species before us forms scarcely a case for medicine: since nature or that instinctive power which is ever operating to the general welfare of the animal frame, will be usually found competent to its object. So that if any thing remedially is attempted, it should be confined perhaps to a slight increase of the peristaltic action of the intestines by a dose of neutral salts, and to a removal of the dry heat of the skin by diluents and small doses of ipecacuan, which combines admirably with most aperients, and increases their power, while its own diaphoretic quality continues at least undiminished and is often improved. This is now well known, though not a discovery of recent date; for Gianella, Vater, and various writers of credit, strongly recommended the same from personal experience nearly a century ago*.

Gamesters frequently suffer severely from this species.

Gamesters, after sitting up all night, and being worked up to madness by the chances and reverses of their ruinous stakes, are peculiarly subject to this species. A very cold and wet towel tied round the temples seems to give some check to the violent excitement of the brain, and diminishes the morbid excess of sensorial power it is in the act of secreting; but in the long run I have generally found persons who have adopted this practice become debilitated and dropsical, and sink into an untimely grave, or creep on miserably through

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* Gianella, De admirabili Ipecacoanhæ virtute in curandis febribus, &c. Patav. 1754.—Vater, Diss. de Ipecacoanhæ virtute febrifugâ, &c. Witeb. 1732.

Gen. I. Spec. I. Ephemera mitis. Treatment.

the fag end of a lingering life, that affords no retrospective comfort, with a hospital of diseases about them. But whether this proceed from the practice adverted to, or from the habitual exhaustion which necessarily accompanies a course of gambling, may admit of a doubt. Yet, the habit itself appears mischievous, however pleasant at the time, as having a strong tendency by frequent repetition to torpify the secretories of the brain by the rapid and violent change of action they are thus made to undergo.

SPECIES II.

EPHEMERA ACUTA.

Acute Diary Fever.

SEVERE RIGOR; GREAT HEAT; PULSE AT FIRST SMALL AND CONTRACTED, AFTERWARDS FULL AND STRONG; PERSPIRATION COPIOUS; GREAT LANGUOR.

Gen. I. Spec. II.

In a few instances the accession is slightly marked, and there is little chilliness or rigor. The heat that succeeds, however, is always considerable; the face is red and bloated; and there are often pungent and throbbing pains in the head, corresponding with the pulsations of the arteries; though at times the pain in the head is dull and heavy. The high-coloured urine deposits a sediment with a tinge of orange-peel.

Generally produced by some affection of the chylopoetic viscera or stomach.

We cannot always trace the remote causes of this species; but it is usually produced by some morbid affection of the stomach or of the collatitious viscera.

The most obvious and common cause is that of a surfeit, whether of eating or drinking. And there is no great difficulty in interpreting the means by which this cause operates.

Gen. I. Spec. II. Ephemera acuta. Acute diary fever.

How the present species is thus excited.

The stomach, in the language of Mr. John Hunter, and it is language confirmed by the experience of every day, is the great seat of general sympathy, and associates with almost every other organ in its action. The digestion of even an ordinary meal is a work of some labour to it, and especially in weakly constitutions; a greater degree of heat, as I took occasion to show, in the proem to our second class, is regularly expended upon it during this process, and unquestionably also a greater degree of sensorial power; both which, though taken directly from the brain, are taken indirectly from the system at large as from a common stock; and the consequence is that, in infirm habits, a considerable degree of chill and debility are felt during this process, and other organs become torpid while the stomach is in a state of increased action. Hence infants and old persons sleep during digestion; delicate females feel a coldness shooting over their extremities; and those of irritable fibres become flushed in the face, and show other signs of irregular action. Now if this be the case in the digestion of ordinary meals, what disturbance may we not expect during the digestion of a meal that overloads the stomach, and with which the stomach is incapable of grappling? what, more especially, when at the same time, by an immoderate use of wine or spirits, the brain becomes exhausted of its energy by the excess of stimulus applied to it? The general chill over the surface, which, in the digestion of an ordinary meal, is only felt by the weak and delicate, is here often felt severely, and sometimes amounts to a horripilation. The first stage of fever is hence produced: and as the heat and perspiration are most probably a necessary result of the first, a foundation is hereby laid for the entire paroxysm. With the reaction that ensues a greater degree of sensorial power is again secreted; the general frame as well as the brain is roused to an increased energy; the diaphragm and its associate muscles, instinctively or remedially, contract, and the stomach disgorges its contents, or thrusts them forward half-digested into the duodenum.

GEN. I. SPEC. II. Ephemera acuta. Treatment.

The only and well known mode of cure consists, in the first place, in imitating this process: in unloading the stomach of its mischievous freight by a powerful emetic, and the alvine canal of whatever portion of the heating and crapulous mass has passed into it by a brisk cathartic. The fever hereby excited will often subside in a diurnal revolution; and no tendency to a return of the paroxysm be produced.

Sometimes becomes a cauma,

If the species before us, however generated, do not subside within this period of time, or a few hours beyond it, the disease becomes a cauma, or inflammatory fever of the continued kind, and consequently belongs to the genus ENECIA.

or assumes some other form.

There are, however, a few exceptions to this rule: for Forestus gives a case in which the paroxysm led to a fatal hectic *: and Borelli gives another of equal singularity, in which it kept true to a triennial revolution, returning punctually once every three years †.

SPECIES III.

EPHEMERA SUDATORIA.

Sweating Fever.

TENSE PAINS IN THE NECK AND EXTREMITIES; PALPITATION; DYSPNŒA; PULSE RAPID AND IRREGULAR; HEAT INTENSE; INTOLERABLE THIRST; DROWSINESS OR DELIRIUM; EXCESSIVE SWEAT.

GEN. I. SPEC. III.

I HAVE followed M. de Sauvages in introducing sweating-fever, the ephemera *maligna* of Borsieri ‡, or Burserius as he is more commonly called, and the sudor *Anglicus* of most foreign writers, into the present place.

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* Lib. I. Obs. 7.

† Cent. II. Obs. 100.

‡ Institut. Med. Pract. 8vo. 4 Tom. Ven. 1782-5.

Gen. I. Spec. III. Ephemera sudatoria, Sweating fever.

Description.

Dr. Caius, who practised at the time of its appearance at Shrewsbury, and has written one of the best accounts of it extant, calls it "a contagious pestilential fever of one day." "It prevailed," says he, "with a mighty slaughter, and the description of it is as tremendous as that of the plague of Athens." And we are told by Dr. Willis, "that its malignity was so extreme, that as soon as it entered a city it made a daily attack on five or six hundred persons, of whom scarcely one in a hundred recovered." It was certainly a malignant fever of a most debilitating character, but without any tendency to buboes or carbuncles, as in the plague. It ran its course in a single paroxysm; the cold fit and hot fit were equally fatal; but if the patient reached the sweating fit, he commonly escaped.

Mode of treatment.

Hence the cure consisted in exciting the sweating stage as quickly as possible, and in supporting the system with cordials throughout the whole of the short but vehement course of the fever. At Shrewsbury, it continued to rage for seven months, and during that period of time a thousand fell victims to its violence. But after the discovery of the benefit of the sweating-plan, it was certainly far less fatal.

General history.

It made its first appearance in London in 1480 or 1483: Caius says in the latter year, first showing itself in the army of Henry VII. on his landing at Milford-Haven. In London, to which however it does not seem to have travelled till a year or two afterward, it took up its abode with various intermissions of activity for nearly forty years. It then visited the continent, overran Holland, Germany, Belgium, Flanders, France, Denmark, and Norway; among which countries it continued its ravages from 1525 to 1530: it then returned to England, and was observed for the last time in 1551.

It commenced its attack with a pain in the muscles of the neck, shoulders, legs, or arms, through which a warm aura seemed to creep in many instances; and after these symptoms, broke forth a profuse sweat. The internal organs grew gradually hot, and at length burning, the

GEN. I. SPEC. III. Ephemera sudatoria. Sweating fever.

pungent heat extending to the extremities, an intolerable thirst, sickness, and jactitation followed speedily, occasionally with diarrhœa, and always with extreme prostration of strength, head-ache, delirium, or coma, and a wonderful wasting of the whole body. The sweat was tenacious, saburral, and of an offensive smell; the urine thick and pale; the pulse quick, often irregular; and the breathing laborious from the first. The modes of treatment were often puerile, and offer nothing instructive. A good constitution and exposure to free air seem to have been most successful in promoting a cure.

Dr. Caius asserts, that a thick noisome fog preceded the distemper, especially in Shropshire, and that a black cloud uniformly took the lead, and moved from place to place; the pestilence in a regular march following its diretion. There may be some fancy in this: but it is an unquestionable fact, that the most fatal pestilences of ancient and modern times have been ushered in by stinking fogs or mists, or some other intemperament of the atmosphere, of which the reader will find various instances in the sequel of this work.

The disease is generally, however, supposed to have been produced by inclement harvests and vitiated grain, particularly wheat, which is less hardy than other grains and sooner infested with albigo (mildew), ustilago (smut), and clavus (ergot or spur). And in proof that this last was the actual cause, it is observed by Dr. Willan, that the contemporary inhabitants of Scotland and Wales, who fed on oaten or barley, instead of on wheaten bread, were not affected. Nevertheless whatever was the primary cause, a peculiar miasm or contagion seems to have been generated by the disease itself, which chiefly contributed to its spread and continuance. For we are told concurrently by all the writers, that Englishmen who withdrew from their own country into France and Flanders with the hope of escaping the attack of the disease, fared no better than their countrymen at home. To which Dr. Freind adds, that, while Englishmen abroad were thus subject to the contagion, foreigners and even the

Englishmen only said to have been subject to it.

Gen. I.
Spec. III.
Ephemera sudatoria.
Sweating fever.

Scotch in England were rarely or never seized with it*; a feature that has been copied by Dr. Armstrong in his very forcible description of the complaint, which is perhaps better adapted for poetry than for sober prose.

> Some, sad at home, and, in the desert, some
> Abjur'd the fatal commerce of mankind;
> In vain: where'er they fled, the fates pursued.
> Others, with hopes more specious, cross'd the main,
> To seek protection in far distant skies,
> But none they found. It seemed the general air,
> From pole to pole, from Atlas to the East,
> Was then at enmity with English blood:
> For, but the race of England, all were safe
> In foreign climes; nor did this fury taste
> The foreign blood which England then contained†.

Something may, perhaps, be set down to the score of a national diathesis; but without examining very closely into the accuracy of this wonderful part of its history, we may at least indulge a hope that this peculiar, most virulent and fatal contagion has long since worn itself out, and become decomposed; though it may be still only latent, and waiting for its proper auxiliaries once more to show itself in the field‡.

It is said, indeed, by Dr. Coste, the learned editor of Dr. Mead's works in French, that the disease continued to manifest itself occasionally as an epidemic in Picardy; but that, instead of terminating in a single day, it runs on to the third, fifth, and sometimes even to the seventh. It is hence sufficiently obvious that the two fevers, though possessing many points of resemblance, are not precisely the same. Yet M. Bellot, in his thesis "An febri putridæ Picardii SUETE dictæ, sudorifera?" has maintained Dr. Coste's opinion.

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* Hist. of Physic. Vol. II. p. 533.

† Art of Preserving Health, B. III.

‡ Navier, Maladies Populaires, &c.

GENUS II.

ANETUS.

Intermittent Fever. Ague.

PAROXYSM INTERMITTING, AND RETURNING DURING THE COURSE OF THE DISEASE: THE INTERMISSIONS GENERALLY PERFECT AND REGULAR.

GEN. II. UNDER the preceding genus, the remote cause, whatever it consists in, lays a foundation for not more than one paroxysm. In the genus before us, the cause introduces a tendency to a recurrence of the paroxysm from the first; and, in most cases, with an interval that continues true to itself as long as the disease lasts. I say in most cases, because we shall see presently, that, when intermittent fever has raged very extensively, it has not unfrequently established a type of one kind in one person, and of another kind in another; whilst in the same patient quotidians have changed to tertians, tertians to quartans, quartans to quotidians, and all of them in a few instances to continued fever, in the most capricious and anomalous manner.

Type sometimes varies.

United with remittents by Cullen.

Dr. Cullen unites intermittents and remittents into one section of fevers, merely distinguishing them as intermittents with an interposed apyrexy, and intermittents with remission alone: and, as already observed, he makes it a part of the pathognomic character of both that they are derived from marsh-miasm — *miasmate paludum ortæ*—as though there were no other cause of their production, whence Dr. Young gives to intermittents and remittents the common name of *paludal* fever.

GEN. II. Anetus. Intermittent fever. Ague.

How far this union is well founded.

The only ground then assumed for this union of intermittents and remittents, is the supposition that the cause which generates them is single, common to the two, and never generates any other fever. Now, although the febrile miasm issuing from marsh-lands is by far the most common cause of intermittents, it is by no means the only cause; for we find intermittents, like all other species of fever, produced from various sources; existing in hot countries as well as in cold, in high lands as well as in low lands, sporadically as well as epidemically; sometimes excited by sympathy, sometimes by contagion. Even in tertians Dr. Cullen is obliged to admit of instances in which other agents are necessary; but, then says he, they are only *co-agents*, and would not operate alone. "*Has potestates excitantes pro parte principii hîc admittimus, licet neutiquam excitassent*, si miasma paludum non antea applicatum fuisset." But this is the very point of controversy; for in many instances they produce the disease where marsh-miasm cannot be suspected. I have seen an isolated case of a regular tertian on the highest part of Islington; and another on the dry and gravelly coast of Gosport, a situation so healthy that all the inhabitants escaped, when in the year 1765 a most fatal and epidemic fever, originating unquestionably from the miasm of swampy grounds, pervaded the whole island of Portsea, situate at not more than a mile distant on the other side of the water, and exhibiting, in different individuals, and often in the same person, all the diversities of the intermittent, remittent, and continued type. Dr. Fordyce affirms, that he has seen an intermittent communicated by infection, meaning the miasm from human effluvium; and where the yellow fever has long existed or become widely diffusive, this is common. Where it arises from sympathy or organic affection, the case is still clearer. "Two children," says Mr. J. Hunter, "had an ague from worms, which was not in the least relieved by the bark; but by destroying the worms, they were cured." We have in like manner agues from many diseases of particular parts, more especially of the liver

Intermittents from other sources than marsh miasm.

Gen. II. Anetus. Intermittent fever. Ague.

and the spleen, and from an induration of the mesenteric glands *." De Meza gives an instance of an intermittent produced by a repelled herpes †; and Baldertius, by suppressed lochia ‡.

Sometimes found in high lands, while low lands escape.

But one of the most singular and convincing proofs, that the decomposition of marsh-lands is not essential to the production of intermittent fever, is to be found in the epidemic intermittent of 1780, as described by Sir George Baker, and which we shall have occasion to advert to more particularly hereafter; for, during this, the intermittent harassed very extensively the elevated parts of Lincolnshire, while the inhabitants of the neighbouring fens were free from its ravages §. And in like manner, the dry and healthy climate of Minorca is sometimes attacked with remittent or intermittent fever, while Sardinia, proverbial for its insalubrity and febrile epidemics, escapes ||.

Hence no sufficient ground for Cullen's arrangement.

To unite remittents, therefore, with intermittents, from an idea of their having a single and common origin, is to depart from the clear line of symptoms into a doubtful region of etiology. If intermittent ought to be separated (as unquestionably they ought) from continued fevers, so ought remittent to be separated from intermittent. To say that intermittents often run into remittents, is to say nothing, for remittents as often run into continued fevers; and it is now an established doctrine that there is no continued fever whatever without occasional remissions. In effect, all fevers have a tendency to run into each other, and many causes are perhaps common to the whole. The difficulty is in drawing the line: yet a like difficulty is perpetually occurring to the physiologist in every part of nature; and equally calls for discrimination in zoology, botany, and mineralogy:

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[*] On Blood, Part II. ch. IV. p. 411.

[†] Act. Soc. Med. Hafn. Tom. I. N. 10.

[‡] De Putridine, Urbin, 1608.

[§] Med. Trans. Vol. III. Art. xiii.

[||] Cleghorn, Diseases of Minorca.

GEN. II. Anetus. Intermittent fever. Ague.

and Dr. Parr has correctly observed, that "if a *specific* distinction can be established in any branch of natural history, it must be in the separation of remittents from intermittents." Vogel unites remittent with continued fevers, to which Cullen, rightly enough, objects ; but the former has as much reason on his side, as the latter has for uniting them with intermittent. Sauvages, Linnéus, Sagar, and most modern writers, correctly distinguish each from the other.

Intermittents generally true to their type in the same person:

When an intermitting fever or ague is by the operation of marsh-miasm, or any other cause, once introduced into the system, and has once discovered its type, or given an interval of a particular measure between the close of the first and the commencement of the second paroxysm, it continues true, as a general rule, not merely to the same measure or extent of interval, but to the length and severity of paroxysm, through the whole course of the disease ; the character of the cold stage, determining that of the hot, and both together that of the sweating stage ; and the paroxysm ceasing because it has completed its career. But the first interval, like the first paroxysm, which regulates the rest, is of different duration in different cases : of the reason of this difference we know nothing ; sometimes it seems to depend upon the season or the temperament of the atmosphere, operating upon the febrile miasm that is diffused through it, and all who have agues in the same place or at the same time, have them of the same kind. Sometimes, on the contrary, it seems chiefly to depend upon the time of life, the idiosyncrasy, or the particular condition of the constitution, for, as already observed, different individuals even in the same place and under the same roof exhibit different types. But upon this subject we have no clear information.

but occasionally vary in different individuals.

Nevertheless, whatever may be the cause of this difference, it lays a good foundation for dividing the intermittent genus into distinct species, and the five following are sufficient to comprise all its principal diversities :—

GEN. II. Anetus. Intermittent fever. Ague.

1. ANETUS QUOTIDIANUS.	QUOTIDIAN AGUE.
2. ——— TERTIANUS.	TERTIAN AGUE.
3. ——— QUARTANUS.	QUARTAN AGUE.
4. ——— ERRATICUS.	IRREGULAR AGUE.
5. ——— COMPLICATUS.	COMPLICATED AGUE.

As the connexion between all these is peculiarly close, and they occasionally run into each other's province; and more particularly as the same mode of treatment is common to the whole, it will be most convenient to defer the general history and praxis, till we have taken a survey of these species in their respective definitions and the varieties they often exhibit.

It may, however, considerably assist the student, and simplify his pursuit in acquiring a knowledge of their characters, to attend to the three following remarks:—

Axioms in intermittent fevers.

Firstly, the shorter the intermission, the longer the paroxysm.

Secondly, the longer the paroxysm, the earlier it commences in the day.

Thirdly, the more durable the cold fit, the less durable the other stages.

Illustrated.

Thus, the quotidian has a longer paroxysm and a shorter interval than the tertian; and the tertian a longer paroxysm and a shorter interval than the quartan. And thus again, while the quotidian has the longest duration, it has the slightest cold stage; and while the quartan has the shortest duration, it has the longest cold stage. It is also the most obstinate to cure.

All the species subject to varieties:

Each of these species, however, admit of considerable variations: for sometimes we find the paroxysm protracted beyond its proper period; sometimes anticipating, and sometimes delaying its proper period of return. In other cases, we find each of these species catenated with or giving rise to foreign symptoms or other diseases. And we also meet with a peculiar variety of the quotidian ague, in its being sometimes limited to a particular part or organ, in which case it is usually accompanied with very distressing pain.

The most irregular of all the species is the fourth, for this is sometimes found to deviate from all the three rules I have just laid down; but particularly in the greater length of its interval, which is sometimes double or even treble that of the quartan, whose interval of seventy-two hours is the longest of the three more disciplined species; it is hence found under the various forms of a five-day, a six-day, a seven, eight, nine, and even a ten-day ague; and sometimes is so extremely vague as to bear no proportion whatever between the violence of its paroxysm, the duration of its stages, and the period of its return.

GEN. II.
Anetus.
Intermittent fever.
Ague.
particularly the fourth.

The fifth species is distinguished from the rest by its peculiar complexity, consisting of double tertians, triple tertians, unequal tertians, duplicate tertians, together with as many varieties of the quartan type; the nature and key of which will be more particularly noticed under the species itself.

SPECIES I.

ANETUS QUOTIDIANUS.

Quotidian Ague.

INTERMISSION ABOUT EVERY TWENTY-FOUR HOURS: PAROXYSM COMMENCING IN THE MORNING: USUAL DURATION UNDER EIGHTEEN HOURS.

THE genuine quotidian is of less frequent occurrence, than the other species; but it has a considerable resemblance to that variety of the complicated intermittent, which has generally been denominated a double tertian, and with which it is often confounded. It is distinguishable, however, to an attentive eye by the regularity of its paroxysms, which is true to itself on every return; while in the double tertian the alternate paroxysms only are

GEN. II.
SPEC. I.
Resembles the double tertian.
How distinguished from it.

Gen. II.
Spec. I.
Anetus quotidianus.
Quotidian ague.

true to each other, as we shall have occasion to observe more particularly in the proper place. The quotidian, like the tertian and quartan, has sometimes been epidemic.

The quotidian intermittent is occasionally limited in its attack to a particular part, and is occasionally connected with other affections. It deviates also now and then from its common rule, in having an imperfect intermission, and in precipitating or procrastinating every subsequent paroxysm: and hence, affords us the following varieties:—

α Partialis.	Partial quotidian.
ϐ Comitatus.	Catenating quotidian.
γ Protractus.	Protracted quotidian.
δ Anticipans.	Anticipating quotidian.
ε Cunctans.	Retarding quotidian.

α A. quotidianus partialis.
Partial quotidian.

In the partial quotidian, the febrile attack is confined to a particular part or organ, and usually accompanied with distressing pain.

Under this modification, sometimes one side of the body has suffered, while the other has escaped: sometimes one or both eyes; but more generally the whole or half the head, not unfrequently resembling cases of cephalæa, and particularly that species of it which is called hemicrania.

ϐ A. quotidianus comitatus.
Catenating quotidian.

In the catenating quotidian, the disease associates with or gives rise to various foreign symptoms or other diseases. And hence, is often found in union with rheumatic affections, particularly lumbago and sciatica. Sauvages quotes a case in which it associated with daily attacks of a frightful epilepsy *. And Dr. A. Munro, in the Edinburgh Medical Essays, narrates a similar instance, though less severe, and alludes to several others that had occurred to him †. Torti has made a collection of numerous examples of this variety, and has united

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* Class II. Febr. Intermit. Quot. Spec. IV.

† Vol. II. Art. xix.

them into one family, under the name of febres intermittentes comitatæ. Galen has described one or two of them under the name of epiala.

GEN. II. SPEC. I.

γ A. quotidianus protractus. Protracted quotidian.

In the protracted quotidian, the intermission is inordinately short or imperfect. In the former case the paroxysm is lengthened beyond the usual period of eighteen hours; and in the latter case does not so completely subside as to leave the intermission totally clear of febrile symptoms. On which last account the Latins described this variety under the name of quotidiana continua; and the Greeks under that of amphemerina.

δ A. quotidianus anticipans. Anticipating quotidian.

In the anticipating quotidian, which is the name given to our fourth variety by Dr. Fordyce, the paroxysm precedes its antecedent period usually by about two hours, and continues the same fore-march at every recurrence; so that the accession may hereby be thrown into any hour of the day or night.

ε A. quotidianus cunctans. Retarding quotidian.

The retarding quotidian, which, like the last, has been particularly noticed and named by Dr. Fordyce, forms a direct counterpart to the anticipating; the paroxysm delaying its antecedent period usually by about two hours, and continuing the same delay at every recurrence; so that here also the accession may be thrown into any hour of the day or night.

There are few diseases, moreover, in which the quotidian is not occasionally to be found as a symptom; but it occurs especially in hysteria, catarrh, gout, peripneumony, ischury, quinsy, and several species of odontia.

SPECIES II.

ANETUS TERTIANUS.

Tertian Ague.

INTERMISSION ABOUT FORTY-EIGHT HOURS: PAROXYSM COMMENCING AT NOON: USUAL DURATION UNDER TWELVE HOURS.

GEN. II. SPEC. II. Description.

THE tertian ague, the tritæus of the Greeks, occurs most frequently in the spring and summer months; though there is a spurious kind that shows itself in the autumn. The chill, during the cold fit, is intense, with convulsive shivering, rigidity, and gnashing of the teeth. It is, however, of shorter duration than that of the quartan, and sometimes passes off in less than half an hour; and is succeeded first by nausea or vomiting, and afterwards by a pungent penetrating heat, frequent respiration, urgent desire for cold drink, wakefulness, and head-ache, sometimes delirium. At length a moisture on the skin, gradually advancing to a copious sweat, breaks forth, the urine commonly deposits a lateritious sediment, and there is often some looseness of the bowels. The entire paroxysm sometimes ceases in six hours, but more generally extends to eight or ten; if it exceed twelve, as it does occasionally in the autumn, the disease forms the spurious tertian I have just alluded to. As the quotidian is mostly common to infants and persons of delicate habits, the tertian chiefly affects those of riper years or of firmer fibres, and especially persons of a bilious temperament. It was the opinion of Hippocrates that the tertian ague, if left to nature, would run itself out in seven paroxysms; and Vogel adds, that, when this is the case, there is usually the appearance of a dry scabby eruption about the

Most common in the hale and robust.

Duration as calculated by Hippocrates.

lips on the fourth or fifth paroxysm. But the period pointed out by the former does not hold in our own day; and the disease has often continued obstinate in spite of cutaneous eruptions, not only about the lips but over the body. Sydenham asserts, that in the autumn, in which, however, a genuine tertian is rarely to be met with, its ordinary natural course is double the term allotted by Hippocrates, or rather that the term of its paroxysms amounts to the space of fourteen days. The tertian exhibits occasionally the two following varieties:

Gen. II.
Spec. II.
Anetus tertianus.
Tertian ague.

α Comitatus.	Catenating tertian.
β Protractus.	Protracted tertian.

To both which the explanation already given under the same terms in the preceding species will equally apply. As an associate disease, it is chiefly to be found united with syncopal and soporose affections, indicating some oppression of the brain; or with cholera, or dysentery, mostly indicating irritation or congestion in the liver.

Explanation under the preceding species will apply to these varieties.

It is also to be traced occasionally as a species in syphilis, sea-scurvy, worms, and scabid eruptions.

SPECIES III.

ANETUS QUARTANUS.

Quartan Ague.

INTERMISSION ABOUT SEVENTY-TWO HOURS: PAROXYSM COMMENCING IN THE AFTERNOON: USUAL DURATION UNDER NINE HOURS.

This, which is also the quartana of Celsus, is the tetartæus of the Greek writers. It is rarely found in the

Gen. II.
Spec. III.

Gen. II.
Spec. III.
Anetus quartanus.
Quartan ague.
General character,

vernal season, but is common in the autumnal; in which quarter, also, it is far the most obstinate of all the species, and especially if, as Celsus observes, it show itself only a short time before the commencement of winter. Its chief subjects and sufferers are those of advanced years, and of a melancholic habit; for children and young persons, who principally feel the effects of the two former species, are but little obnoxious to it. It commences usually about or a little before five o'clock in the afternoon. The cold fit is less vehement than in the tertian, but of longer duration, and will sometimes continue for two hours, but usually without sickness or diarrhœa. It yields to a heat that is rather troublesome from its dryness than from its intensity, and which is

and effects.

rarely succeeded by a sensible perspiration. There is a heaviness or dullness in the head rather than acute pain; and often during the intermediate days, a sense of soreness over the body, as though it had been generally bruised, which strikes through to the bones. It is here also we principally meet with parabysmic tumours, and especially of the spleen and liver: in the former of which organs they are vulgarly called *ague-cakes*.

The quartan offers the following varieties:—

α	Comitatus.	Catenating quartan.
β	Protractus.	Protracted quartan.
γ	Anticipans.	Anticipating quartan.
δ	Cunctans.	Retarding quartan.

Of all which an explanation will be found by turning to the same varieties under the first species.

From the tendency which this species has to affect the abdominal viscera, it is often met with as a symptom in diseases of the spleen, liver, and various adjoining organs.

SPECIES IV.

ANETUS ERRATICUS.

Irregular Ague.

INTERMISSION AND PAROXYSM POSSESSING LITTLE REGULARITY: THE FORMER MORE THAN SEVENTY-TWO HOURS.

Gen. II. Spec. IV.

We have already perceived that there is occasionally some degree of irregularity in all the preceding species, least of all, however, in the quartan. And hence all the above might, in such instances, be named erratic. But the peculiar character of the present species is, that the duration of the intermission exceeds that of all of them; on which account it can never be confounded with any of the rest.

Distinctive character.

The chief varieties are the following; which, however might be considerably enlarged, but it is unnecessary. They are principally taken from Sauvages and Vogel: and for other authorities the reader may turn to the volume of Nosology.

α Quintanus.	Five-day ague.
β Sextanus.	Six-day ague.
γ Septanus.	Seven-day ague.
δ Octanus.	Eight-day ague.
ε Nonanus.	Nine-day ague.
ζ Decimanus.	Ten-day ague.
η Vagus.	Vague and irreducible.

Sometimes peculiarly obstinate.

Several of the above have occasionally persevered with great obstinacy; in some instances for upwards of two years without ceasing. The last variety is equally irregular as to the violence of its paroxysm, the duration of

Gen. II.
Spec. IV.
Anetus erraticus.
Irregular ague.

its stages, and the period of its return. Several of Sauvages's species of hemicrania may be properly referred to this place, and especially those, which, by some writers, have been denominated INTERMITTENTES LARVATÆ, or disguised intermittents.

SPECIES V.

ANETUS COMPLICATUS.

Complicated Ague.

PAROXYSMS INTRICATE, MULTIPLICATE, OR BOTH.

Gen. II.
Spec. IV.
Analysis of its intricacy.

THERE are numerous examples of ague which, to an inattentive eye are as irreducible to any regular order as those which belong to the last variety of the preceding species; but which, when minutely examined, are found, however intricate, to be composed of types, not that uniformly resemble each other, but that recur in alternate sets, every set being true to itself, while it differs from that with which it alternates in the duration of its intervals, or of its paroxysms, or of the time of its accession. And hence, although in some shape or other, most of them return perhaps every day, and are often mistaken for irregular quotidians, they are, in fact, double or triple tertians, or quartans, discovering their real nature by these alternating distinctions.

The following are the chief varieties :—

α Tertianus duplex. Double tertian.	The paroxysms of the one tertian occurring in the intermissions of the other: and the two sets evincing a difference of duration or of violence.

Gen. II. Spec. V. Anetus complicatus. Complicated ague.

β Tertianus triplex. Triple tertian.	A double tertian, taking place as above; but one of the sets having regularly two paroxysms on the day of its return, and the other, one alone.
γ Tertianus impar. Double unequal tertian.	The one set evincing a more perfect, the other a less perfect intermission.
δ Tertianus duplicatus. Duplicate tertian.	Being a single tertian with two paroxysms on the regular day of attack, the intervals being of ordinary duration.
ε Quartanus duplex. Double quartan.	The paroxysms of the one set occurring in the intermissions of the other; and evincing a difference of duration or of violence: with an interval on the third day alone.
ζ Quartanus triplex. Triple quartan.	Consisting of a single quartan with regularly returning paroxysms; while each of the intervening days is marked with a slighter or separate attack.
η Quartanus duplicatus. Duplicate quartan.	Consisting of a single quartan; with two paroxysms on the regular day of attack: the intervals being of ordinary duration.
θ Quartanus triplicatus. Triplicate quartan.	Consisting of a single quartan with three paroxysms on the regular day of attack: the intervals being undisturbed and of ordinary duration.

Having thus distinctly noticed the several species

Gen. II. Spec. V. Anetus. Intermittent fever.

and chief varieties of intermittent fever, I shall proceed to offer a few remarks upon its general history, and medical treatment.

General history of intermittents.

How far dangerous.

How far serviceable.

Whenever the accession of an intermittent is violent, be its type what it may, it is sometimes attended with very alarming symptoms, as syncope, apoplexy, vehement spasms over the whole system, or a coldness or torpor which threatens death. Yet, when not violent, nor of very long duration, and especially when of the tertian type, it is often serviceable to the general health, and carries off many chronic and lurking disorders of other kinds: Dr. Fordyce affirms that he has seen it of considerable use in curing or alleviating chronic rheumatism, habitual indigestion, cutaneous eruptions, protracted inflammations, epilepsies, and hysteria *. And his assertion is corroborated by other authorities †.

Duration uncertain.

The duration of intermittents is of great uncertainty. The vernal agues generally disappear with the advance of summer: the autumnal are more obstinate, and especially the quartan. Where they have remained long, and have become habitual, even their removal must be attempted with great caution; for when abruptly suppressed, they have been known to lay a foundation for a host of other maladies, often of a more fatal description, as paralysis, various visceral affections, and even sphacelus.

Has continued through a great part of life:

Ludolf gives an instance of an eight-day ague (anetus *erraticus octanus*), continuing for eighteen years; yet this was probably a double quartan; while we have abundant examples of a continuance of the regular quartan for nine ‡, twelve §, eighteen ‖, twenty ¶, twenty-four*, and thirty years†, and one instance of it lasting for not less than forty-eight years‡. It is in this species therefore, that we chiefly meet with those congestions in the spleen which are called ague-cakes, as also with scirrhosities in the liver, pancreas, and other abdominal organs, which by Bonet, Swalwe, Senac, and other writers have been regarded as causes of the disease, but by Van Hoven, and all the pathologists of the present day are more correctly resolved into effects.

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* On Fever, Diss. II. p. 16.

† Salmuth, Cent. II. Obs. 14.—Ephem. Nat. Cur. Dec. III. Ann. III. Obs. 30.

‡ Eph. Nat. Cur. Dec. II. Ann. VIII. Obs. 45.

§ Avicenna, Fen. I. Lib. IV. Tr. II. Cap. VI.

‖ Madai, Von Weekselfiebern. Sect. 144.

¶ Eph. Nat. Cur. Dec. III. Ann. IX. and X. Obs. 51.

GEN. II. SPEC. V. Anetus. Intermittent fever.

and formed ague-cakes and other congestions.

Schenck gives a case of congenital quartan, or in which it appeared in an infant immediately after birth§; and Paullini another, in which, though not strictly congenital, it appeared in very early infancy‖. But such examples are rare. Among other singularities, I may observe, that, the accession has sometimes been so violent as to destroy the patient in the course of the first paroxysm, of which an instance will be found in Senac¶, while at other times it has been so slight and rapid, that the entire paroxysm has run through its course in a minute**.

Has been found congenital.

Has destroyed in a single paroxysm.

The paroxysm has been completed in a minute.

The character of the intermittent seems in a considerable degree to depend upon the age or idiosyncrasy of the individual and the temperament of the atmosphere. We find also that variations more usually take place in the quotidian than in any other type, which we should, perhaps, ascribe to its occurring more frequently in early life, when the frame is more irritable; and to the greater debility which the constitution suffers from this type above that of any other, in consequence of the greater length of its paroxysms, and the greater brevity of its intervals, by which means the prostrated strength of the system has no time to rally or recover itself.

Quotidians more variable than any other type.

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[*] Marcellus Donetus, Lib. III. Cap. XIV. p. 291.—Pontanus, De. Nébus Conel. L. VIII.

[†] Binninger, Obs. Cent. V. N. 64. Wierius Obs. p. 37.

[‡] Gabelchover, Cent. VI. Obs. 74.

[§] Obs. Lib. VI. N. 36.

[‖] Cent. I. Obs. 94.

[¶] Von Weekselfiebern, B. II. Cap. VI.

[**] Reil, Memorab. Clin. Vol. II. Fasc. I.

GEN. II. SPEC. V. Anetus. Intermittent fever.

Intermittents peculiarly frequent in London, from 1781 to 1785.

In this metropolis, from causes which have not been handed down to us, and which, indeed, do not appear to have been traced at the time, intermittent fevers were more than ordinarily frequent from the year 1781 to 1785: and the remarks I have just made apply in an especial manner to all these. As a single example, let us select those of 1782, as described by Sir George Baker and Dr. Reynolds, in an article drawn up by the former with an admirable combination of learning and liberality, sound critical judgment, and inquisitive research.

Sir George Baker's account of 1781-2,

"The type of the fever of 1781-2," says Sir George, "was either tertian or quotidian; the former being more common in the first part of the winter; the latter, from the middle of February to the end of June. With respect to the former NOTHING OCCURRED to my observation which is worthy of notice. On the latter, Dr. Reynolds has communicated to me the following remarks: and any addition would be unnecessary relative to a subject which he has so well exhausted."

This communication is too long to be copied verbally, but it is fully entitled to the praise which the learned baronet has bestowed upon it. It will be sufficient for our present purpose to transcribe its leading features.

as communicated by Reynolds.

Dr. Reynolds, in his communication to Sir George Baker, tells us, that the quotidian fevers of the above year were irregular in their invasion, and uncommon in their appearance; and that no cases resembled each other except in very few circumstances. The first attack generally commenced with a horror; but the subsequent paroxysms, though often beginning with a sense of cold, were chiefly without horror. The intermission was short and seldom perfect. The symptoms were very severe, and in many cases dangerous, and leaned strikingly to a typhous form. Great and sudden oppression of the head, anxiety, depression of spirits, a dry,

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* Medical Transactions, Vol. III. Art. XIII.

Gen. II. Spec. V. Anetus. Intermittent fever.

parched, tongue, yet less covered with hardened mucus than might be expected; a pulse low, quick, and intermitting; bowels variable; urine dark-red, and clear without any sediment, constituted the ordinary signs. Many had a low muttering delirium; two or three, a laborious respiration; a few, spasms and twitchings of the tendons; aphthæ appeared occasionally; and one patient exhibited symptoms of violently acute rheumatism. The bark was universally successful; and, "I was as much pleased," says Dr. Reynolds, "with its present efficacy, as I was in the year 1781 mortified by its extraordinary want of power. Half the quantity of it which I used on that occasion was sufficient on this."

General remarks hereon.

In other words, idiosyncrasy and atmospheric temperament were both peculiarly visible, and gave a peculiar character, in the one instance to particular cases, and in the other to the general disease. In plethoric habits the head was greatly oppressed, with a tendency to delirium. In those of a nervous or irritable disposition, the intermittent was connected with spasms and twitchings of the tendons. And those disposed to rheumatism had acute arthritic pains. The state of the atmosphere, and general character of the season Dr. Reynolds has forgotten to notice: but we see evidently, and indeed he himself allows, that they gave a typhous impression to the epidemic; which, from the same or from other causes, is also peculiarly distinguished by the easy victory it yielded to the use of the bark: as that of the preceding year was distinguished by its obstinate resistance to this medicine.

Sir George Baker's own account of 1780-1.

If we ascend a year higher, or to 1780-1, we shall meet with an equal diversity of symptoms. "These fevers (intermittents)," says Sir George Baker, "were in general no other than the common ague; but in the more inland counties of England, they were often attended with peculiarities extraordinary and alarming. For the cold fit was accompanied by spasm and stiffness of the whole body; the jaws being fixed, the eyes staring,

GEN. II. SPEC. V. Anetus. Intermittent fever.

Symptoms peculiarly severe.

and the pulse very small and weak.—In many cases delirium was added to spasm, under both which symptoms the patient laboured quite to the end of the paroxysm. And, though the senses returned when the fever subsided, yet a convulsive twitching of the extremities continued even in the intermissions, to such a degree, that it was not possible to distinguish the motion of the artery at the wrist.

Peculiarly variable.

"This fever had every kind of variety; and whether at its first accession it were a quotidian, a tertian, or a quartan, it was very apt to change from one type to another. Sometimes it returned two days successively, and missed the third, and sometimes it became continual. I am not informed that any died of this fever whilst it intermitted. It is, however, certain that many country people, whose illness had, at its beginning, put on the appearance of intermission, becoming delirious, sunk under it in four or five days. It is a remarkable fact and very well attested, that in many places, WHILST THE INHABITANTS OF THE HIGH GROUNDS WERE HARASSED BY THIS FEVER, IN ITS WORST FORM, THOSE OF THE SUBJACENT VALLIES WERE NOT AFFECTED BY IT. The people of Boston and of the neighbouring villages, in the midst of the Fens, were in general healthy, at a time when this fever was epidemic in the more elevated situations of Lincolnshire. It is likewise singular, and worthy of notice, that in many families the female servants were nearly exempted from a disease which very few male servants, especially the labourers in the open air, escaped. But the distinguishing character of this fever was its obstinate resistance to the Peruvian bark; nor, indeed, was the prevalence of the disease more observable than the inefficacy of the remedy. Though the quantities of the bark usually given were exceeded, the fit was apt to return, rarely altered, either with respect to the time of invasion, or the intenseness of the symptoms; and just as if no means had been used to prevent it. A drachm of the bark in powder was frequently

Often raged in high grounds and not in low grounds.

Among females in the house rather than males abroad.

Obstinate resistance to the bark.

administered every second hour without averting the fit*."

Medical treatment. General character of remedies for intermittents.

In casting our eyes over the great diversity of medicines that have been employed for the cure of intermittents, we shall find that, innumerable as they are, they may be arranged under two general heads, tonics and antispasmodics; as though, long before the time of Dr. Cullen, his two principles of the disease, debility and spasm, had been uniformly admitted and acted upon.

Antispasmodics and tonics with what views employed.

The antispasmodics, consisting chiefly of stimulants, sedatives, and relaxants, have been confined to the term of the paroxysm, with a view to weaken and shorten it; and the tonics, consisting principally of bitters and astringents, have been employed throughout the intervals with a view of fortifying the system against a recurrence of the attack.

In discussing the medical treatment of intermittent fevers, it will be sufficient to limit ourselves to these two indications.

Pungent antispasmodics of Bergius:

It was a favourite practice with Bergius to anticipate the cold fit, constituting the accession of the paroxysm, by pungent stimulants, in the hope that if he could successfully combat this first stage, he should gain a complete victory, not only over the individual paroxysm, but over all future incursions. His favourite medicines for this purpose were garlic, mustard-seeds, and capsicum, which in his day was described under the name of piper Indicum. And he boasts of having, in numerous instances, completely succeeded with each of these; though he admits that the mustard-seeds answered best in vernal intermittents, and did not in general prove sufficient for the autumnal quartans. His chief reliance was placed on the capsicum, six grains of which he was in the habit of giving, combined with two scruples of bay-berries in powder, "incipiente primo rigore;" and of

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* Med. Trans. Loc. citat.

Gen. II. Spec. V. Anetus. Medical treatment.

repeating it every day, at the same hour, for three or four times in succession. And he assures us that he has very frequently seen obstinate intermittents removed by this powder, and without any relapse.

Ineffective in other hands.

The practice, however, has not been equally successful in other hands; not even when capsicum has been given in a much larger quantity, or exchanged for ammonia, treacle-mustard (clypeola *Jonthlaspi*), or black or white-pepper, the latter of which is only the former denuded of its outward tunic, mixed up with brandy or hollands. They have all, indeed, sometimes answered, but the result is uncertain; and, as was long ago observed by the Baron Van Swieten, if the medicine did not succeed upon a full dose, and especially when combined with ardent spirit, it will often extend its influence to the hot fit, and greatly exacerbate it; and not unfrequently convert an intermittent into a continued fever. Upon the whole, therefore, this plan is not to be recommended, however varied. The least pernicious material is the ammonia, but then it is also the least effective.

Cold water as an anti-spasmodic.

A large draught of cold water has been not unfrequently had recourse to for the same purpose, and also, in a few instances, with success. The object is, by taking it about half an hour before the cold fit is expected, to excite a strong re-action and powerful glow over the entire system against the time when the cold fit returns, and thus to pre-occupy the ground; and, by disturbing the regularity of the type, to subdue the intermittent altogether. But this plan has, perhaps, more frequently failed than the preceding: and when the shivering or horripilation produced by the cold water has not been followed with a stimulant effect, as in delicate habits more especially, it has often continued so long as to run into the term of the febrile cold fit, and very considerably to increase its power. Ballonius relates a case in which it proved fatal*.

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* Opp. Tom. I. p. 193.

Gen. II. Spec. V. Anetus. Medical treatment. Sedative antispasmodics, especially opium.

The next division of antispasmodics which have been directed against the paroxysm, and especially against the rigor with which it makes its onset, is sedatives, and of these the chief have been opiates, which, when given in the form of laudanum in a dose of from thirty to forty drops at the commencement of the chill, has, in many cases of intermittents, been highly beneficial; diminishing the duration of the stage, and moderating its symptoms. Dr. Trotter says, that he practised this plan with general advantage in an epidemic intermittent that attacked the Vengeance, one of the channel fleet under Lord Howe: and adds, that, "if the first dose of opium did not produce a sensible relief and exhilaration of spirits in half an hour, he repeated it, and never found it necessary to go beyond a second dose."

Trotter's use of opium.

We have already seen, however, that there is some cause or other, probably the peculiar temperament of the atmosphere at the time, that baffles on one occasion the remedy that has best succeeded on another. And hence opium has often failed in other intermittents in every form, but especially when given in the cold fit. And owing to this diversity of effect Dr. Lind thought it most useful in the hot fit; and asserts that, if administered to the extent of twenty or five and twenty drops of laudanum half an hour after the beginning of the hot fit, it produced the advantage of shortening and moderating the heat, calmed the anxiety and head-ache which are usual concomitants, expedited the sweating stage, made the paroxysms more regular, and sometimes stopped the fever altogether.

Lind's.

Other physicians have commenced with relaxants; and where these are selected, the antimonial preparations are to be preferred to ipecacuan. They tend more directly towards the surface, and, where it is useful to excite vomiting, which is often the case, they act sooner, and maintain the action longer, and hence make a double effort to accelerate the sweating stage. These preparations differ chiefly from each other by having the reguline part of the antimony they contain in a more or less fusible state;

Relaxants as antispasmodics.

Antimonials.

Gen. II. Spec. V. Anetus. Medical treatment.

The same preparation often affects different individuals differently.

and their operation will often vary according to the quantity or quality of the acid they meet with in the stomach; and hence the different effect of the same preparation in different persons, and even in the same person at different times. The rubinus *antimonii*, or antimonial febrifuge of Craanen, was at one time regarded as a specific in intermittents on the continent, and was in particular favour with Stahl, Dieterech, Vogel, and many other physicians of reputation; but it does not appear to be of superior efficacy, in any respect, to the antimonial powder of the London College.

Relaxants combined with opiates.

The most efficacious practice which I have witnessed, consists in uniting relaxants with opiates; and, where this joint effort is pursued, ipecacuan may answer as well as any of the preparations of antimony. We cannot have, for this purpose, a more useful medicine than Dover's powder; and it should be commenced with much earlier than is consistent with the usual practice, so as not to regulate the hot and sweating stages, but to anticipate the cold fit. And we may still farther add to the ingredients of the medicine a full dose of volatile alkali with great advantage; for it is in this form, if in any, that we can employ stimulants with a certainty of doing little mischief, and very nearly a certainty of considerable benefit.

Case successfully treated by Fordyce.

In the case of a quartan in St. Thomas's Hospital which had lasted two years, Dr. Fordyce determined upon this plan; and prescribed a full dose of Dover's powder with a sweating draught of carbonate of ammonia two hours before the paroxysm was expected. It succeeded perfectly. A profuse perspiration anticipated the period of the cold fit, and hereby entirely prevented it; bark was next given freely, and this obstinate ague was cured in a few days *.

Animal oils.

How far the use of Dippell's or any other animal oil might be serviceable as an antispasmodic in intermittents, I cannot say. Dr. Hoffman was highly im-

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* Edinb. Med. Comment. Vol. vi. p. 359.

Gen. II. Spec. V. Anetus. Medical treatment.

pressed in their favour; and asserts, that a single dose of from twenty to thirty drops, given six hours before the accession of an intermitting fever, will frequently prove a complete cure to the complaint. They appear certainly to be sedative and diaphoretic, and it is said that the sweat they excite by a single dose may continue for twenty-four hours without languor or debility. As a medicine, these oils have perhaps been thrown aside too hastily.

Diluents and other auxiliary means.

Whatever be the relaxant or sudorific employed, it should be assisted by plentiful potations of warm diluents and by placing the patient between the blankets instead of in the sheets of his bed: for I have already had occasion to observe that upon these auxiliary means depend, in many instances, the accomplishment of the object we have in view, without which the most urgent diaphoretic exerts itself to no purpose.

Period of intermission chiefly to be depended upon.

The most important season, nevertheless, for medical operation is in the intermission of the paroxysms: since, however successful we may be in moderating the febrile attack, it is rarely that we can depend upon any plan which may then be adopted to prevent a recurrence of the fit.

Tonics; and their properties, as bitters and astringents.

The opinion of mankind seems to have concurred in most ages, in regarding debility as either the proximate or predisponent cause of intermittents, since almost the only medicines that have been brought forward to guard against the recurrence of their periodic attacks have been TONICS, with the sensible quality of bitterness or astringency, or of both.

In what way they act.

In what way these act upon the moving fibre at any time, and particularly in the disease before us, we cannot say with any degree of precision. The tone of the moving fibre depends unquestionably in some degree upon the state of the fibrous material itself, but perhaps in a much greater degree upon the quantity or quality of the nervous fluid that issues from the brain and is communicated to the fibrous structure, or as it is

Gen. II. Spec. V. Anetus. Medical treatment.

modified in any particular set of fibres. We have great reason for believing that astringents, in producing tone, act upon the fibrous material itself, for we find them operating in a like manner upon animal fibres both in a living and a dead condition. But whether, as Dr. Cullen conjectures, it be the part of bitters alone to act upon the nervous power or living principle which adheres to them, and especially in the very singular manner in which he represents them as acting, is a different question; and the present is not the place for entering upon it.

If we contemplate the nervous fluid as a peculiar secretion, and the brain as the secreting organ, we can readily conceive that the component parts of this organ as well as of any other may be invigorated by medicines that have a peculiar influence on its structure, and probably concentrate and give tension to its fibres; and that, in consequence hereof, it may be rendered capable of secreting its proper fluid in greater abundance, or a more elaborate perfection. And we can also readily conceive that such effects may be produced by both bitters and astringents, as well as by medicines that possess some other sensible qualities, though these are the most obvious in their operation. But should we, with Dr. Cullen, affirm that the same bitter employed in the same proportion, produces both tone and atony, energy and debility; that it both cures the gout, and occasions it; that employed for a certain time it affects the former, and after such time, the latter; and should we beyond this affirm, with him also, that the nervous fluid is not a secretion, but an inherent power of the brain; that it admits neither of ncrease nor diminution; is changeble in its state, but unchangeable in its essence; becomes excited and collapsed, or rises and falls in its energy, but experiences nothing of the decomposition, or recruit of every other part of the living frame around it; we should travel into a labyrinth of incongruities, and only enlighten ourselves with a will-o'the-wisp. Dr. Cullen's system, like

Cullen's hypothesis unsatisfactory.

himself, is a work of no ordinary stamp; it is full of immortality, but mixed up with weak and perishable materials.

Gen. II. Spec. V. Ahetus. Medical treatment. Cinchona.

Of the remedies appertaining to the one or the other of the two divisions we are now considering, those of astringents and bitters, the cinchona or Peruvian bark, which unites both qualities in itself, is on every account entitled to our first attention.

This valuable medicine, which some practitioners are apt to despise or think lightly of in the present day, has never been altogether without its opponents; and there are many facts respecting its operation, which, if not altogether anomalous, are of very difficult solution.

History of its introduction into Europe.

Peruvian bark, according to the authority of Don Joseph Villerobel, a Spanish physician noticed by Badus, was first brought to Spain in the year 1632; but here, as in every other country, it had for a long series of years to encounter the prejudices of the medical profession; and consequently was very rarely made use of, and unquestionably would have sunk into oblivion but for the activity of the Spanish Jesuits, who continued zealously to recommend it, and to import large quantities of it from their brethren in South America. Through these means it was at last recommended by Pope Innocent X. in 1661, as a medicine perfectly innocuous and salutary: and a Schedula Romana, drawn up under the sanction of the physician to his holiness, pointed out in express terms the time and proportion in which the bark was to be taken. Unfortunately the time stated was *frigore febrili incipiente*, "at the commencement of the cold fit;" and it being administered in this manner with only temporary benefit to the Archduke Leopold of Austria, a year or two afterwards, it immediately fell into great discredit with a very large and learned part of the medical community of Europe; and a most acrimonious warfare was instantly waged in every quarter on the subject, in which the combatants on both sides seemed more desirous of victory than of truth.

When introduced into England.

In our own country the bark began to become popular

GEN. II. SPEC. V. Anetus. Medical treatment.

about 1655. In 1658, Mr. Underwood, an Alderman of the city of London, died while using it, and was instantly reported to have fallen a sacrifice to its power; and so prejudicial was the effect of this rumour, that Cromwell, who was attacked with an ague in the same year, was suffered to languish and at length die without an exhibition of the bark, his physicians being afraid to make a trial of it in consequence of the fatal accidents that had so lately accompanied its use: in the words of Morton, "nondum vires corticis in hoc veneno subigendo, saltem hic loci, comprobatæ erant *."

Begins to be countenanced.

In England, therefore, as well as on the continent, there was a great conflict of opinion. Dr. Prejean, who both preceded and succeeded Dr. Harvey as president of the College of Physicians, appears openly to have advocated its employment in 1658, according to facts adverted to by Sir George Baker in his admirable article on intermittent fevers †, from which these hints are chiefly drawn up. Dr. Brady, professor of physic at Cambridge, appears equally to have countenanced it; as does Dr. Willis according to his own statement: while Dr. Morton professed himself inexperienced upon its virtues, and Dr. Sydenham was decidedly adverse to its use.

Candour of Sydenham.

Sydenham, however, was a man of reason and liberality. His prejudices, and especially those derived from the hypothesis that a fever is a fermentation in the blood raised by nature to throw off some peccant matter at the surface, and which ought not therefore to be checked in its course, however wise it may be to moderate it in its violence, were all at arms against the use of the bark under any circumstances: and the mischievous effects to which he had been an eye-witness in some instances, and its total inertness in more, gave a sanction to suspicion, if it did not justify hostility. But he was determined to watch

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[*] Pyretolog. p. 17.

[†] Medical Transactions, Vol. III. Art. XIII.

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it for a still longer period through all its variable effects, and to abide by the result when fairly cast up. He soon became sensible that it was, in most cases, a powerful engine; that in many instances it was highly serviceable; and that in those in which it failed, the miscarriage was rather to be ascribed to some error in handling it, than to a want of power in the drug itself.

Its progress checked by an improper administration; by being often adulterated.

Sydenham had sufficient ground for this last conclusion. The mode in which it was, at this time, usually administered, was in doses of two drachms given twice in the twenty-four hours; and, as already observed, the time selected for the purpose was during the existence of the paroxysm. It is moreover highly probable that it was sometimes considerably adulterated, from the difficulty of obtaining it in any considerable quantity.

Its great scarcity at first.

In 1658, we learn from Sturmius, who warmly patronized its use, that pure bark was so scarce on the continent that twenty doses of the powder were sold at Brussels for sixty florins for the purpose of being sent to Paris; and that this order so completely exhausted the apothecary's stock, that he himself was incapable of obtaining any even at that price. And hence, for the use of one patient, who was attacked with an obstinate intermittent fever in the month of February of the same year, he was obliged to wait till the June following before he could obtain a supply*. Nor was it less difficult to be procured at Brussels, than in many other parts of Europe; for Bartholine, then residing at Copenhagen, having received as a great rarity a present of three doses, or six drachms, of the powder, from some friends who had brought it from Italy, was induced to make a trial of it on a lady who had a quartan fever. Of this small portion the first dose or two drachms was rejected from the patient's stomach; and, in order to prevent a repetition of this accident, and consequently the loss of his entire stock, the administrator macerated his two

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* Febrifugi Peruviani Vindiciarum Pars prior, p. 84. Antwerp, 1659.

Gen. II. Spec. V. Anetus. Medical treatment.

remaining doses in wine for forty hours, and gave the infusion *during two successive paroxysms.* The only effect was, that the fever was changed from a double to a single quartan. And here the experimenter was obliged to stop, as having no more materials to proceed with*. But even in 1678, when the same pretext for sophisticating it no longer existed, Morton complains that the bark offered for sale was become so inert, corrupt, and adulterated, that it was necessary to increase the proportion from two drachms, to one, two, or even three ounces for a single dose. And, thus given by wholesale, we cannot wonder that still more mischief should result from its abundance than from its scarcity, whatever might be the purity or impurity of its quality.

Sydenham's regulations.

To guard against all the evils that seemed to accompany its use, Sydenham proposed to himself the following regulations.

Firstly, To be peculiarly cautious in the quality of the bark he employed; and to allow of no intermixture whether from fraud or a view of increasing its virtue.

Secondly, To administer the bark in the intervals instead of in the paroxysms of a fever.

Thirdly, To give it after the rate of two scruples every four hours, instead of two drachms twice a-day after the Schedula Romana.

Under these regulations the bark seems to have acquired all the success to which it has at any time pretended; and modern practice has added little to their value.

Administration in the apyrexy, by whom first suggested.

The most important of them is that which effected a change in the period of exhibiting the bark. But whether the merit of first suggesting this improvement be due to Sydenham, or to some contemporary of his, we cannot at present very accurately determine. He is, indeed, the only person who openly lays a claim to it, and asserts that he was led to this alteration after deeply

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* Thomæ Bartholini Hist. Anat. et Med. Cent. v. Hist. L. Hafniæ, 1661.

Medical treatment.

pondering the subject—diù multumque apud se agebat: yet Morton who published his Pyretologia in 1692, only three years after the death of Sydenham, asserts, somewhat loosely indeed, that during twenty or five and twenty years* he had been in the habit of giving this antidote, as he calls it, in every season of the year, and to persons of all ages and constitutions; that he had cured every species of intermittent with it quickly and radically; and had found it more expedient to give it in the intervals than in the fits. While Lister, who was contemporary with both Sydenham and Morton, and who treats neither of them with respect, directly accuses Sydenham, a few years after his death, of having copied his mode of giving the bark from the miserable mountebank Talbor, who was its inventor;—auctore suo, misero illo agyrtâ Talbor†. Talbor or Tabor, however, is scarcely open to the stigma of being a mountebank. He concealed, indeed, his preparation of the bark, but he had been regularly initiated into a knowledge of medicine by an apprenticeship to an apothecary at Cambridge; was the most successful, and therefore the most popular employer of the bark in his day; acquired a higher reputation in this line of practice than any other individual whatever; was appointed one of the physicians to Charles II. against all the influence of the College; was specially sent for to Paris to take the dauphin under his care; succeeded in curing him; and afterwards divulged his arcanum for a stipulated sum to Lewis XIV.

Morton's practice.

Tabor's success: and reputation.

Still, however, under whatever form, in whatever quantity, and at whatever time the bark is given, it is not found to be a specific, not only in every individual, but in every intermittent; and we are hence again driven to a principle I have already ventured to lay down, that intermittents of all kinds are occasionally influenced in their character by idiosyncrasies or the temperament

Cinchona not always effective, and why.

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* Pa. 114, 132.

† M. Lister Octo Exercitationes Medicinales de Cort. Peruv. exhibendi tempore.

Gen. II. Spec. V. Anetus. Medical treatment.

of the atmosphere. And it is hence, of considerable importance to know what other medicines have the strongest claim to attention, when, from accidental circumstances, the best fails of its common effect.

Hence other febrifuges should be studied.

This, as we have already had occasion to observe, was the case in the singular intermittents that prevailed both in this metropolis and in the country in the year 1787, in which the bark seemed to have no energy whatever, notwithstanding that its genuineness was sufficiently tested and proved. In consequence of which the febrifuge powers of various other medicines were attentively studied and appreciated. In some instances other medicines were mixed with the bark, and seemed to a certain extent to call forth its proper power: a mixture of bark and alum answered in some cases, but produced disappointment in others. "The crude sal ammoniac," says Dr. Petrie, who was physician to the hospital at Lincoln, "had not a more certain effect. Several women were cured in an hospital by what is called the Dutch remedy for an ague; which is compounded of the bark and cream of tartar, each two ounces, and sixty cloves powdered. A drachm and a half of this powder was taken every third hour. Yet this likewise frequently failed. We at last thought that we had fallen on a specific in the powder of bay-leaves, plucked from the tree and dried in the shade. It was given from one to two scruples in the beginning of the cold fit. This powder was very efficacious in preventing the fits in many cases, where the bark, in the largest quantity, had been unsuccessful. But almost all who used it had a relapse in the space of a fortnight, three weeks, or a month. One patient, just at the time the fit was expected, took sixty drops of the Thebaic tincture. On this he fell into a profound sleep, sweated profusely, and escaped the fever, not only then but at two successive periods. Eight quartans in the hospital, and four in private practice, were entirely cured by one drachm of the theriaca andromachi, the same of the root of calamus aromaticus in powder, and fifteen grains of salt of tartar. This mixture

Mixture of cinchona with other medicines.

Petrie's practice at Lincoln.

Medical treatment.

was taken in warm ale or wine-and-water, an hour or two before the fit.—Nevertheless I must confess that I met with several cases where no medicine prevailed; and many patients despairing of relief left themselves to nature; some of whom went into a pulmonary consumption, jaundice, or dropsy. Many, whom I thought cured of quartans, lately relapsed. I have now on the hospital books four patients, ill of quartan fevers, who have received no benefit; and I have no hope left but in a long course of deobstruent bitters, and tinctura sacra, aided by the approaching summer *."

Morton's favourite remedy.

Morton's medicine, of one scruple of chamomile flowers, ten grains of salt of wormwood, and the same quantity of calx of antimony, given every sixth hour, is said to have subdued, in the metropolis, an obstinate tertian in two instances. And Dr. Heberden found that two drachms of the powder of myrrh, taken just before the time of the expected fit, relieved a patient from an ague which for a long time had resisted the power of the bark, though taken in very large quantities.

Heberden's.

Red-bark first introduced,

The red-bark was now also tried for the first time: it was proved to be of unquestionably superior virtue to that in common use; but even a moderate dose of it so often oppressed the stomach and excited nausea and vomiting, probably produced by its containing a larger proportion of resin, that, writing at this very period, Sir George Baker tells us, "I have for some time avoided the use of it."

but found oppressive.

Arsenic generally injurious as at first employed.

Arsenic was also tried in combination with opium. It is admitted that it often effected a cure; but was frequently productive of violent vomitings, colic, and dysentery. It seems however to have been given at this period in a somewhat rude and unscientific form. "Arsenic," says the distinguished writer whom I have just cited, "is mentioned in books as a febrifuge, but it is one of those substances of which we are not as yet so far masters, as

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* Med. Transact. Vol. III. p. 165.

Gen. II. Spec. V. Anetus. Medical treatment.

to be able, by any art, to render it transferable from the list of poisons to our Materia Medica; and it cannot be deemed to be a proper remedy for an intermittent fever whilst an intermittent fever is less formidable than arsenic." But to this substance we shall have to return presently.

Failure of medicines in an earlier period not for want of skill.

If the praxis, therefore, frequently failed which was in use about half a century ago, it was by no means for want of distinguished abilities, great diversity of means, or an ample field for experiment. And, although a few other medicines have since been submitted to trial, or some few of the same in improved forms, I am afraid we have no great reason to boast of much clearer illumination or superior success in our own day.

We may not, indeed, be disposed to encourage the farther trial of such operose preparations as milk boiled just seventy-seven times over*, which was one of the most popular charms of the above period; but I have heard of several remedies in high favour and in common use among ourselves, which have as little claim to distinction.

Bitters employed since.

The chief BITTERS that have been called into requisition, independently of those already noticed, are, gentian, cascarilla, willow-bark, nux vomica, and the leaves of the cherry-bay, or prunus *lauro-cerasus*: the chief ASTRINGENTS, tormentil, galls and oak-bark; the bark of both species of the swietenia or mahogany tree; avens or caryophyllata (the geum *urbanum* Linn.), alum, and several of the metallic oxydes.

Generally unite an astringent principle. And hence chiefly useful.

To all these a common remark may be applied, that, where they have been of real service, it has generally, though not in every instance, seemed to arise from their uniting the two qualities of a bitter and an astringent, and that they have rarely answered where there has been only one of these qualities to depend upon. Thus tormentil, one of the most powerful vegetable astringents we possess, and gentian one of our most powerful vegetable bitters, succeed so rarely alone, that no dependance is to be placed upon them; but when given in combination, they almost rival the virtue of cinchona; and have occasionally succeeded where the latter has failed. "Joined," says Dr. Cullen, "with galls or tormentil, in equal parts, and given in sufficient quantity, gentian has not failed in any intermittents of this country in which I have tried it*."

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* Ephem. Nat. Cur. Dec. III. Ann. VII. VIII. Obs. 48.

Medical treatment.

There is, however, a principle independently of bitterness and astringency, that seems absolutely necessary to enter into conjunction with these, in order to give full efficacy to any medicine employed as a febrifuge in intermittents; and a principle that has hitherto eluded all research. For if the cure depended upon the intensity of a bitter and an astringent quality alone, galls, oak-bark, and mahogany-bark ought to succeed better, not only than an union of tormentil and gentian, or chamomile and alum, which have also been found very serviceable, but than cinchona itself; which every one knows they do not do, although, when Peruvian bark cannot be obtained, they become desirable substitutes.

But the most useful possess some further unknown principle.

The nux vomica, and Ignatius's bean (strychnos *nux vomica*, and ignatia *amara*, Linn.), combine, with an intense bitter, a most active narcotic virtue; and how far the last may be peculiarly opposed to a recurrence of that spasm on the extreme vessels which constitutes the cold fit, it is difficult to determine. M. Bourieu † from his own practice strongly recommends the latter, and Paullini ‡ and Aaskow § the former. If Dr. Fouquier's remark be well founded, which we shall have occasion to notice more at large when treating of paralysis, that these poisons have a power of augmenting energy in debilitated muscular fibres, while they leave those in health unaffected, we can account for some part of the success which has been so vauntingly ascribed to them in the

Nux vomica.

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[*] Mat. Med. Part. II. Ch. II. p. 72.

[†] Hist. de la Societé R. de Med. 1776. p. 340.

[‡] Cent. III. Obs. 45.

[§] Act. Societ. Med. Hafn. Tom. II.

Gen. II. Spec. V. Anetus. Medical treatment.

case of intermittents. But, notwithstanding that they have been for this purpose before the public for upwards of a century, the infrequency of their use is a strong argument that they are not much entitled to commendation. "In a very small dose," says Dr. Cullen, "the faba Sancti Ignatii has the effect of curing intermittent fevers*." But whether he reports this from his own practice, or from that of others, we cannot exactly determine: nor does he tell us what is the small dose he refers to. I have tried the nux vomica to the extent of eight grains in powder every six hours for an adult under palsy, without any mischievous effects except a slight stupor in the head. And much beyond this we cannot proceed with prudence. Hoffman gives the case of a girl of ten years of age, who was killed by taking fifteen grains of it, divided into two doses, for an obstinate quartan†.

Fatal case from its use.

Lauro-cerasus.

The lauro-cerasus was at one time, as we are told by Dr. Brown Langrish, a common medicine in his neighbourhood for the cure of agues‡: but he takes no notice of the dose or mode of administering it. Its properties are nearly the same as those of bitter almonds; and Dr. Bergius informs us, that he has frequently prescribed an emulsion of bitter almonds with success in intermittents, in the quantity of a pint or two daily during the intermission; and that it has sometimes cured where the bark had failed§. This is an authority worth attending to; and as the same medicines are said to have a peculiar power of resolving visceral obstructions, they have an additional claim to a cautious series of experiments. It is generally supposed, in the present day, that their poisonous property depends upon their containing a portion of native prussic acid: the taste of prussic acid, however, is not bitter, but sweetish and acrid. Yet it is

Bitter-almonds.

Their poison supposed to depend on their prussic acid.

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[*] Mat. Med. Part II. Chap. II. p. 76.

[†] Philos. Corp. Hum. Morb. P. II. Cap. VIII.

[‡] Experiments on Brutes. See also Phil. Trans. No. 418, 420.

[§] Mat. Med. p. 412.

chiefly the bitter we seem to want in the present instance; and if prussic acid really exist in others, and could be separated from the bitter principle from which it appears to be distinct, we might be put into possession of a medicine of considerable importance.

Gen. II. Spec. V. Anetus. Medical treatment.

Hence desirable to separate this from their bitter principle.

The only metallic oxide really worthy of notice is that of arsenic; for although various oxydes of iron, mercury, zinc, and copper, have been tried, and occasionally extolled, none of them have proved so decidedly beneficial as to render it worth while to try them over again.

Metallic oxydes.

Arsenic.

Its use imported from India.

Arsenic, under various forms, has been employed from a very early period*. It is, strictly speaking, an oriental medicine, and has been in vogue immemorially in India, and indeed, all over the east, as a most powerful alterant, as we shall have occasion to notice more at large when treating of syphilis and elephantiasis. It was probable introduced into European practice by the medical students under the brilliant caliphate at Bagdad: and seems to have been first appropriated to the cure of intermittents by the Jewish physicians of Poland†. In Sir George Baker's time, we have seen already that it was in extensive use, but productive of such very different results, that, however successful it might prove occasionally, this distinguished pathologist thought it a worse evil than any ague whatever. At that period, however, it does not appear to have been tried in its most commodious forms, which are those of an arsenite or arseniate of potash. M. Macquer recommends the latter; Dr. Fowler, many years ago introduced and gave abundant proof of the utility and general commodiousness of the former; and under this modification it has at length found its way into the Pharmacopœia of the London College, under the name of liquor arsenicalis.

Liquor arsenicalis.

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* Act. Med. Berol. Dec. I. Tom. III.

† Gilibert, Adversar. Pract. Prim.—Slevogt, Pr. de permissione Prohib. et prohibitione Permiss. Jen. 1700.

Gen. II. Spec. V. Anetus. Medical treatment. Often decidedly useful, though not to all.

The cases of success from the use of this medicine are so numerous, and its employment is now become so general, as to render it unnecessary to advert to particular authorities in proof of its febrifugal power. With many constitutions there can be no question that it disagrees very considerably; and there are numerous instances of its failure: but it is a medicine of real and inappreciable value in many diseases, and in none more than in intermitting fevers. Dr. Fowler advises it to be taken in doses of from two to twelve drops, according to the age and strength of the patient, once, twice, or oftener, in the course of the day: and the directions are so broad, and at the same time so much within limit, that no actual harm can occur from following them literally. It will, however, often be found advantageous to combine a few drops of tincture of opium with each dose, to guard against the vomiting and griping which it is sometimes apt to excite; and the bowels should be kept open by warm aperients during its use. Under the French Directory, a similar preparation of arsenic formed a part of the political constitution of the day; for an edict was formally published, commanding that the surgeons of the army of Italy should, within the course of two or three days, cure the vast number of soldiers suffering from agues caught in the marshes of Lombardy, by the use of this medicine, under pain of military punishment.

Advantageously united with opium.

Result of the foregoing inquiry.

The result of this general survey is, that the cinchona offers by far the best remedy for intermittents of every kind; that arsenic is its best substitute; and that where these fail, as fail they will occasionally, or particular circumstances should prohibit their use, we must throw ourselves upon such other medicines as unite intrinsically, or by combination, a bitter and an astringent principle with a certain proportion of aroma or stimulant warmth.

It is at the same time clear that a bitter and astringent principle are not the only, nor even the most effectual qualities for the cure of an intermittent; for the arsenical

Gen. II.
Spec. V.
Anetus.
Medical
treatment.

preparations contain neither of these in any prominent degree; while, as already observed, there are many medicines that possess them in far greater abundance than the bark, which have no claim to be put in competition with it as a febrifuge. In effect, of the three species of cinchona used officinally in the present day, the lance-leaved, pale or quilled bark (c. *lancifolia*), heart-leaved or yellow bark (c. *cordifolia*), and oblong-leaved or red bark (c. *oblongifolia*), the yellow, which, as we learn from Mutis and Zea, is the genuine febrifuge of Spanish America, and whose superiority to the rest has been abundantly proved in this country as well as on the continent of Europe, is very considerably less bitter and astringent than the red, and not more so than the pale bark: it has less resin than the first, and less gum than the second. Dr. Cullen preferred the red, but Zea's communications upon the subject[†] were not then published; and he was not in possession of the experiments by which the statement of the latter has been confirmed. Sir George Baker, as already noticed, found the red bark produce so much oppression and nausea that he was obliged to discontinue its use.

The most active febrifuges possess some property not yet ascertained.

Ordinary administration of the bark.

In administering the bark, little needs to be added to the rules laid down by Sydenham, and copied in a preceding page. Dr. Home has sufficiently shown, not only that the best time for commencing the medicine is soon after the paroxysm, but that it should be discontinued some time before a recurrence of the cold fit, since, if persevered in till its accession, this fit is almost uniformly rendered more violent[†].

If in the proportion of half a drachm or two scruples to a dose, as recommended by Dr. Sydenham, or such other quantity as may sit without uneasiness on the stomach, it should not succeed, it should be tried in combination with some aromatic, or omitted altogether; and by no means be increased to the enormous quantities

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[*] Annal. de Hist. Nat. Tom. II. Madrid, 1800.

[†] Clinical Experiments, 8vo. Edinb. 1780.

GEN. II. SPEC. V. Anetus. Medical treatment.

some practitioners have ventured upon, who seem to have conceived that they could force the system to yield to its powers by the overbearing arms of weight and measure. It is singular that Borsieri should have so far lost sight of moderation, as to have prescribed occasionally from four to six drachms of the powder in a single draught. In the extremity of the yellow fever such doses have, indeed, been given, and perhaps with advantage, but opium and old port, in large abundance, have been given at the same time.

Where it should be abstained from.

It will also be judicious to abstain from the use of bark in every instance in which any of the abdominal viscera appear to be labouring under parabysmic enlargements, whether antecedently to its employment or during its use; and, in these cases, to alternate small doses of calomel, with whatever tonic may be found to agree best with the system.

Malaria of the Campagna.

Among the endemic intermittents of the present day that are more particularly worthy of notice, are those which appear in the neighbourhood of Rome, and especially about the Pontine marshes, which have often been drained to carry off the decomposing animal and vegetable materials that spread their *aria cattiva*, as it is called, over the whole of the Campagna. The disease hence produced is named, from its source, *malaria*. It is also found in like situations, and has the same name, about Syracuse, and other parts of Sicily. M. Rigand de l'Isle has asserted, that the miasmic particles which infect the air in these places are heavier than the air in its loftier and lighter strata, and may be separated from it. He tells us that he has found an elevation of 300 yards, at the Pontine marshes themselves, a complete security from infection; and he proposes for those who reside lower to sift the air which they breathe, by wearing a fine silk gauze over the mouth and nostrils *.

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* Mem. de l'Institut. Royal de France, March 24, 1817.

GENUS III

EPANETUS.

Remittent Fever.

SYMPTOMS STRIKINGLY EXACERBATING AND REMITTING; BUT WITHOUT INTERMISSION; ONE PAROXYSM EVERY TWENTY-FOUR HOURS.

Gen. III. Epanetus.

This genus offers the three following species, which will be found sufficient distinguished from each other by their specific characters:

1. EPANETUS MITIS.	MILD REMITTENT.
2. ——— MALIGNUS.	MALIGNANT REMITTENT.
3. ——— HECTICA.	HECTIC FEVER.

Additional proof that marsh-miasm is not the only cause.

Yet still the common cause.

Human contagion sometimes a cause: and especially of hectic or the third species.

In the last, the remission is perhaps more perfect than in either of the others; and it serves to show how little foundation there is for referring all remittent as well as all intermittent fevers to the individual cause of marsh-miasm: for it would be difficult, though, perhaps, not impossible, to find a single example of a genuine hectic originating from this source. Marsh-miasm, however, is the most common cause of the second, perhaps of the first species; though we shall presently find it probable that even here, and particularly in the second species, human contagion has also occasionally proved a cause, as it assuredly has in those cases of hectic fever produced by perpetually attending upon or sleeping with a consumptive patient.

SPECIES I.

EPANETUS MITIS.

Mild Remittent.

PULSE REGULAR THOUGH FREQUENT; DEBILITY SLIGHT; REMISSION DISTINGUISHED BY SWEATING OR A CLOUD IN THE URINE.

GEN. III. SPEC. I. Origin and scope.

THIS species occurs most frequently among persons of relaxed fibres, debilitated habits, and sedentary occupations; and is usually preceded by an irregular action of the alvine canal, flatulency, abdominal tension, dyspepsy, or some other affection of the viscera of the lower belly. It occurs at all seasons of the year, but more frequently in the autumn; the ordinary temperament of the season uniting with the patient's infirm state of health, and thus adding an exciting to a predisponent cause. Fatigue, cold, or long exposure to the rays of the sun, are also, at this time, powerful concomitants, and quicken the appearance of a disease, the seeds of which have for some time, perhaps, been lurking in the system.

Diagnosis.

The patient complains of drowsiness, and feels languid; is occasionally chilly, and afterwards flushed, but without perspiration; for the skin is hot and dry, the thirst considerable, commonly with nausea and a total loss of appetite. In the course of the day, but usually towards the evening, the pulse quickens, the heat increases, and at length terminates in a sweat, which, however, is sometimes only partial, rarely free and copious, and never critical: for, on its ceasing, the skin is still dry and heated, and the pulse accelerated. Sometimes the exacerbation occurs about noon, and sometimes in the middle of the night.

Gen. III Spec. I. Epanetus mitis. Mild remittent.

Prognosis.

If the disease be left to itself, the symptoms augment in severity daily; the head occasionally, but more generally the liver, or some other abdominal viscus, gives proof of being loaded and oppressed, and the restlessness is intolerable; or a sudden cholera supervenes, and carries off the complaint by a salutary crisis.

Medical treatment.

This species seems to be primarily dependent upon torpitude, or obstruction in some one or more of the chylopoetic organs, and generally yields to a course of active purgatives, amongst which calomel ought to take the lead. These should be repeated two or three times a week, and the intervals be filled up with mild diaphoretics. The pulse will generally be found from ninety to a hundred strokes in a minute; but as soon as it sinks below this, and the heat and dryness of the skin have yielded to a general softness, columbo alone, or combined with sulphuric acid, will easily complete the cure; though the disease not unfrequently runs on for ten days or a fortnight.

Remittent fever of infancy.

The remittent fever of infancy, which is generally ascribed to worms, does not essentially differ from the present, regard being had to the greater irritability of the moving fibre in early life. Worms, there can be no doubt, are sometimes the cause of this infantile fever, but perhaps rarely; and there is no instance on record of their having been traced in the bodies of those who have fallen victims to it. Dr. Hunter, indeed, expressly declares that he has often searched in vain. The ordinary cause is, crude accumulations in the first passages, whence the digestion proceeds imperfectly; there is great general irritation, with considerable languor; the belly becomes tumid and often full of pain; the food is nauseated; the head is hot, heavy, and often comatose; as though there were water in the ventricles, which is sometimes suspected though without foundation; the skin is pale or livid with occasional flushes in the cheeks. It is a singular fact, that if the exacerbation or increase of fever take place in the night, there is wakefulness and perpetual jactitation; if in the day-time, drowsiness and stupor.

Ordinary cause.

Symptoms.

GEN. III. SPEC. I. Epanetus mitis. Mild remittent. Treatment.

Dr. Butter recommends, as an aperient, small doses of neutral salts, and, when the bowels have been opened, nitrate of potash; or, if there be considerable irritation, the extract of hemlock. Generally speaking, however, there is such a sluggishness in the peristaltic action of the bowels, as well as in the intestinal secernents, that neutral salts will not answer the purpose; and, in consequence, rather add to the irritation than carry it off. And hence, much stronger purgatives should be employed from the first; as calomel, resin of jalap, or gamboge dissolved in milk; and it may safely be prognosticated, that, till this plan is had recourse to, the disease will in most instances maintain its ground if it do not make a fearful advance. But with a course of brisk cathartics, in conjunction with perfect quiet, good ventilation, and light nutritive food, it will usually give way in a week or fortnight.

SPECIES II.

EPANETUS MALIGNUS.

Malignant Remittent.

PULSE SMALL, HURRIED, IRREGULAR; DEBILITY EXTREME; OFTEN WITH SIGNS OF PUTRESCENCY.

GEN. III. SPEC. II. Extreme debility how evidenced.

EXTREME debility may be inferred from the symptoms of great weakness and irregularity of the voluntary motions; weakness of sensation; weakness, and wandering of the mind; weakness of the pulse and of respiration; coldness and shrinking of the extremities; and a tendency to faint in an erect posture; nausea, vomiting, and a total disinclination to nourishment; difficult deglutition, depending upon an atony of the muscles of the fauces; involuntary excretions, depending upon an atony or paresis of the sphincters.

GEN. III. SPEC. II. Epanetus malignus. Malignant remittent.

Putrescency of the fluids how evidenced.

A putrescent state of the fluids may be determined from the following symptoms: pulse quick and tremulous; heat of the surface sharp and pungent, giving to the finger a peculiar tingling for some minutes afterward; the skin parched, or soaked with sordid, fetid sweat; the smell offensive to a considerable distance; the breath hot and fetid; the mouth aphthous; the tongue clammy, fetid, livid, greenish-black; the lips swollen, puckered, cracked, and purple; the urine brown or blackish, and offensive; black discharge often in profuse quantity from the stomach; the stools blackish, colliquative, very offensive, parted with profusely and insensibly; the mind wandering; twitching of the tendons; swelling and tension of the belly; petecchial spots, vibices, and hemorrhages from different parts, without proofs of increased impetus.

This species may be traced under four varieties, each sufficiently marked by its own symptoms.

α Autumnalis.	Autumnal Remittent.
ϐ Flavus.	Yellow Fever.
γ Ardens.	Burning Remittent.
δ Asthenicus.	Asthenic Remittent.

α E. malignus autumnalis. Autumnal remittent.

The AUTUMNAL REMITTENT is that which so frequently shows itself in our own country, in the season from which it derives its name, with a strong tendency to assume the tertian or double tertian type: or, in other words, with striking exacerbations every other day, or, where the double tertian is imitated, every day, the exacerbations commencing at noon, and the duration being usually under twelve hours; the intervals consisting of remissions, which, however, are not always very clearly determined. Where the double tertian type prevails, and the patient has to labour with two distinct sets of tertian exacerbations, it is obvious that one of these must take place every day, as it must occur in the remission of the other. And this variety is, in consequence, often mistaken for a quotidian remittent. But a little attention will point out the real nature of the disease. For while the one set will usually be found distinguished

Sometimes mistaken for a quotidian remittent.

Gen. III. Spec. II. α E. malignus autumnalis. Autumnal remittent.

How distinguishable.

from the other by evincing some difference in its duration or its violence, both will be distinguished from the quotidian by the time of their attack, which is at noon, while the quotidian attacks in the morning; and by the comparative brevity of the paroxysm, which is always under twelve hours, while that of the quotidian runs on towards eighteen.

Return of the paroxysm difficult to be accounted for in remittents.

But less so in intermittents.

The perfect apyrexy which takes place in the interval of intermittent fevers gives the constitution a full power of recovering its energy and recruiting its sensorial supply; and we have hence observed, that there is great difficulty in accounting for a return of the paroxysm: I mean in cases in which the patient is removed from the miasmic atmosphere; for otherwise the cause that commenced the disease will be present to continue it. Habit may possibly effect this after a recurrence of several paroxysms; but this will scarcely apply to the second, in which no habit can with great strictness of language be said to have taken place. In remittent fevers, however, something of this difficulty is removed, for the constitution even during the remissive interval, is still struggling with disease, and has not an opportunity of recovering its sensorial power.

Fevers why more frequent in the autumn.

The organs relaxed and weakened generally by the heat of the season;

There is no perplexity in accounting for a greater tendency to febrile affections towards the autumn than in any other quarter of the year; and this whether we allow the operation of a specific febrile miasm from marshes or not. When the animal frame has for some months been exposed to the stimulus of a high atmospheric temperature, and not unfrequently perhaps to that of the direct rays of the sun, all its organs become relaxed and debilitated. The sensorial fluid is secreted less abundantly, perhaps less elaborately; or, in the language of Dr. Cullen, is in a state of collapse; a general languor and inertness prevail over every part of the system, and most of the functions are performed feebly and laboriously. And hence, if debility be the first stage of the proximate cause of fever, this part of the cause is continually present. But this is not all; the

Gen. III. Spec. II. α E. malignus autumnalis. Autumnal remittent.

the liver particularly:

whence congestions and a disturbance of the circulating balance.

calorific rays of the sun act more powerfully upon some organs than upon others: and most of all upon the liver. The liver is, hence, in a state of perpetual irritation: an unusual proportion of bile is secerned, a part of which is very generally resorbed and carried into the circulation; and, in tropical climates, so large a part as to form one of the causes of that tawny hue by which the skin is there characterised. And as the greater portion of the surplus often passes off by the bowels, we see an obvious foundation laid for that variety of diarrhœa which we have already described under the epithet of *bilious*. The liver, moreover, becomes weakened and torpid in proportion to its degree of excitement; and, hence, more disposed to congestion; and where congestion or any other obstruction takes place in a large organ, there is instantly a disturbance in the balance of the circulating fluid; and a disturbance which, in so irritable a state of the general system as we are now contemplating, can rarely exist without fever or a tendency to fever.

The frame weakened often by the vicissitudes of the season.

All this mischief is apt to occur in autumns of temperate climates, that are peculiarly dry and uniform in the range of the thermometer. But it often happens that, even in the most temperate and healthy climates, like our own, the autumnal months are chequered with sudden vicissitudes of heat and cold: and the pools and rivers are suddenly inundated with equinoxial rains, overflow their banks, and cover a wide surface of land with stagnant water. And the animal frame has, hence, to contend against the dangers of invisible damps, and abrupt changes of temperature, as well as against solar excitement: all which become occasional causes of fever, operating upon a state of body already predisposed to its influence.

Marsh-miasm often the remote cause.

And, hence, even without the existence of febrile marsh-miasm, we see sufficient causes for a more frequent appearance of fever in the autumn than in any other season of the year. But in many districts, perhaps even in some sporadic cases, we have reason to believe that marsh-miasm does co-operate, and itself form the

Gen. III. Spec. II. α E. malignus autumnalis. Autumnal remittent.

remote cause; and more especially where such cases are frequent, the residence a low-land, and the season hot and rainy.

Difficulties in explaining the nature of remittents:

yet not greater than in other parts of physical study.

Remark of Sydenham.

There is still, however, a difficulty in determining why the type of any fever hereby produced should be remittent, rather than intermittent or continued; and why its declinations should imitate one form of intermittents rather than another. Pathology has its mysteries as well as every other branch of science; and let the man who would accuse us of ignorance, because we are incapable of explaining these secrets of nature, first tell us, to adopt the language of Sydenham, "why a horse reaches his full growth at seven years old, and a man at twenty one? or, why some plants flower in May and others in June? If," continues he, "the most learned men are not ashamed to make an open avowal of their ignorance upon these points, I cannot acknowledge myself blamable if I modestly forbear reasoning upon a subject quite as difficult and perhaps altogether inexplicable. At the same time I am persuaded, that the progress of nature is as certain and regular in these cases as in any others, and that the quartan and tertian intermittents are as subject to the natural laws, and as much governed by them, as any other occurrences whatever."

Diagnostics.

Violence of incursion and duration of the fever not necessarily in proportion.

The autumnal remittent commences with lassitude, a general soreness over the body, yawning, inquietude, and most of the other concomitants of a febrile incursion. As some of the larger organs have been more affected by the influence of the season than the rest, we find them giving way in proportion. Hence, the head is sometimes severely tried with pain or heaviness; the bowels are overloaded with bile, or the stomach is exquisitely irritable, and rejects whatever is introduced into it. Generally speaking, the stomach, from this symptom, suffers more than any other organ; and, along with the sickness, we have often a very troublesome and debilitating looseness which resists every attempt to check its course. Sometimes, however, the bowels are costive from torpor, and the stomach is but little affected.

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The violence of the symptoms are commonly in proportion to the violence of the incursion; but not the duration of the disease: for I have often seen a fever that commenced mildly and insidiously, hold on for upwards of three weeks, whilst another, that commenced with great severity and threatened the utmost danger, has softened its aspect in a week, and entirely quitted the patient in a fortnight. The exacerbation ordinarily takes place at noon, or early in the afternoon, and consists in an increase of heat and pulsation, for there is rarely any preceding chill, and as rarely any salutary moisture when the heat diminishes. The early part of the night is, hence, peculiarly restless, and no part of it tranquil: the patient doses perhaps for a few minutes, but without being sensible of sleep, and talks incoherently while dosing; the images before him being partly furnished from dreaming and partly from delirium. And even during these snatches of unquiet slumber, he is perpetually turning from side to side in quest of ease, which no position affords him. Every symptom is obstinate; laudanum rarely produces sleep, and no sudorific perspiration: the coolest and most refreshing drink is rejected from the stomach; and if looseness teaze the bowels, it is retained, as already observed, with great difficulty. It is hence of little importance what nourishment is offered, and every preparation seems almost equally to fail in supporting the strength of the system. In effect, the debility increases with every fresh exacerbation; and if no favourable change take place before the fourteenth or fifteenth day, there will always be reason for alarm.

Illustrated by a case of great severity.

In the case of a young lady in her seventeenth year, whom I lately attended, the attack was slight, and no serious evil was at first apprehended. The pulse was about ninety in a minute, and rather small; the bowels were relaxed, the motions bilious, and the stomach suffered from nausea. A gentle emetic seemed to afford some relief to the stomach, and a dose of rhubarb and calomel to the bowels; but the fever continued with a daily and increasing exacerbation, for the most part at

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mid-day or soon after. The stomach again became irritable and sick, and the sickness was again connected with a diarrhœa, but the stools was colourless and watry, and nothing was rejected from the stomach but the diluent food that was swallowed. The skin was now very hot and dry, the pulse from a hundred to a hundred and twenty strokes in a minute, the nights were passed in perpetual jactitation, or in short and talkative dosings. Opium, rhubarb, neutral salts, diaphoretics, and mild astringents, in almost every form and combination, were tried with very doubtful advantage, and the first with evident mischief. Anodyne injections were of as little avail; but sponging the limbs with cold water, or brandy and water, which was employed as well during the remissive as the aggravated symptoms, diminished the pungent heat, and for a time afforded some refreshment. Still the fever continued its career; the stomach retained nourishment with difficulty, the bowels were daily teazed with six or seven watry evacuations; the pulse was quicker and weaker, and the nights without rest. The heart at length became oppressed with a sense of fulness rather than of throbbing; the lips were considerably swollen, ragged and black; a hemorrhage occasionally issued from the nostrils and the fauces; and the general debility was greatly augmented. Such was the appearance towards the eleventh day. The tongue was not much furred, the pulse, though small, and rarely under a hundred and twelve, was steady; but the heat was intense, and the thirst unquenchable. The mineral acids in dilution, sometimes singly, and sometimes in the combined form of aqua regia, with acidulated beverages, were now chiefly trusted to, in connection with farinaceous foods, jellies, and beef tea; and cold water was permitted in any quantity. This plan was continued till about the eighteenth day; when every thing allowed being rejected, and every evacuation accompanied with faintness, it appeared to me that the chief cause of irritation was at this time debility; and that a more stimulant treatment should immediately be commenced. My colleagues,

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for whom I have a high respect, acceded with reluctance, as conceiving that we should only exasperate the febrile symptoms; and that if the stomach could not retain tasteless things, it would instantly reject wine or convert it into an acid. The attempt, however, was made; sound old Madeira was administered by tea-spoonfuls, and shortly afterwards a small portion of chicken-jelly. Both remained on the stomach; but the diarrhœa continued; and for this, as modern preparations had proved of little use, I recommended a scruple of the confectio Damocratis in half an ounce of cinnamon water after every loose motion. The diarrhœa ceased as by a charm; the ensuing exacerbation was less marked, the night was passed more tranquilly, and columbo, in small doses of the powder, was commenced the next morning, and persevered in. The change of treatment, being thus found to succeed, was adhered to, and the patient slowly but effectually recovered.

General treatment.

Emetics, and rather when little or no sickness.

It is not often that the autumnal remittent is thus obstinate. But whether there be sickness or not, an emetic should be administered, as one of the best means of determining towards the skin. And singular as the advice may appear, it is rather to be recommended where there is little or no sickness than where the sickness is incessant; for in this last case the stomach is often so extremely irritable, that emetics only exasperate it and add to the distress. It will also be useful to evacuate the bowels on all occasions, though the emetic alone will frequently be sufficient for this purpose: and hence Stoll allows of nothing beyond; for purging, says he, augments the fever, while an emetic strangles it as at a blow*.

Aperients, whether useful or not.

Venesection, when useful.

The use of the lancet must depend upon the circumstances of the particular case. Where the onset is violent, and particularly where the patient is plethoric or of a vigorous habit, it should be employed instantly and freely; for, without it, from the urgency of the symptoms, α E. malignus autumnalis. Autumnal remittent. Treatment.

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* Rat. Med. Part. I. p. 227.

there can be little doubt that some large organ or other will soon become locally affected with effusion or congestion, which is always to be avoided as one of the worst symptoms that can occur. And if we have reason to believe that such local affection exists at the time of the attack, and more especially that it be the cause of it, copious depletion will be still more necessary; for in this case we have not only to contend with the fever, but to guard against phlogosis or inflammation in the infarcted organ.

When injurious.

But except in such cases there is no call for the lancet, and we may concede to Stoll that its use is injurious.

Other remedies.

Copious diluents, and small doses of antimonial powder in effervescing neutral draughts, will ordinarily take off the burning heat of the skin by exciting a breathing moisture; and if this can be maintained through the day, the ensuing exacerbation will probably be mitigated in its violence. If not, eight or ten drops of the tincture of digitalis should be added to the antimonial draught, and all tendency to sickness be restrained by a few drops of laudanum: keeping the bowels in the mean time open with some gentle laxative, as rhubarb, and the sulphate or supersulphate of potash in combination.

Blisters rarely serviceable.

Blisters are never of service except when topically called for, or as stimulants in the last stage of debility. If the diaphoretic plan fail of effect, and the heat be pungent and augmentive, acids, vegetable, mineral, or both, will ordinarily constitute the best sedatives and refrigerants: and where the debility is extreme, the stimulant plan should be had recourse to which is laid down in the preceding case.

Acids.

β E. malignus flavus. Yellow fever.

Distinctive features.

One of the severest and most fatal forms under which the malignant remittent shows itself, is that of the YELLOW FEVER, constituting the second variety of the present species: so denominated from the lemon or orange hue which is thrown over the entire surface of the body, almost from the first attack of the disease, and which gives it a distinctive feature. The heat is here also intense, the thirst extreme, and the vomiting strikingly obstinate; but not, as in the preceding species, consisting of a

GEN. III. SPEC. II. E. malignus flavus. Yellow fever.

colourless material, or the food that has been swallowed, but of a yellowish matter at the beginning and through the height of the fever, and of a chocolate-coloured colluvies towards its close.

Common remote cause, marsh-miasm.

The common remote cause of this fever is unquestionably marsh-miasm: and hence it holds a stationary abode in the swampy soils and morasses of the intertropical regions, exposed to a high solar heat, and perpetually exhaling a decomposition of animal and vegetable materials; and is found occasionally in all climates that make an approach to the same character: where, in the language of the poet,

> The rivers die into offensive pools,
> And, charged with putrid verdure, breathe a gross
> And mortal nuisance into all the air.

Known under various names.

And, as almost every territory in which it has committed its ravages has given it a new name, it is as gorgeously arrayed with titles as the mightiest monarch of the east. From the depredations it has committed in the West Indies and on the American coast, it has been called the St. Domingo, Barbadoes, Jamaica, and American fever: and, from its fatal visitations on the Guinea coast and its adjoining islands, the Bulam fever. In British India it is distinguished by the name of the jungle-fever, and still further to the east by that of mal de Siam. Nearer home, in the lowlands of Hungary, and along the South of Spain, it is called the Hungarian or the Andalusian pestilence. From its rapid attack on ships' crews that are fresh to its influence, the French denominate it *fièvre matellotte*, as the Spanish and Portuguese call it *vomito prieto*, or black vomit, from the slaty or purplish and granular saburra thrown up from the stomach in the last stage of the disease; while, as its ordinary source is marsh-lands, it has frequently been named *paludal fever*. Its more common name, however, in the present day, and for the reason already assigned, is yellow fever: and, when the attack upon new-comers is slight, *seasoning*.

GEN. III. SPEC. II. 6 E. malignus flavus. Yellow fever. Exhibits great diversity of symptoms. Accounted for.

From its showing itself in so many parts of the world, and under circumstances so widely different, it is not to be wondered at that it should often be accompanied with a considerable diversity of symptoms; and consequently that the paludal fever of one quarter should be regarded by many writers of considerable authority as essentially different from that of another. But an attentive perusal of the origin and laws of febrile miasm, as I have endeavoured to explain them, when treating of the remote cause of fever*, will, I trust, be sufficient to account for all such local distinctions; and, if not to prove, at least to render it highly probable that they depend "partly upon the state of the body at the time of attack, but chiefly upon some modification in the powers or qualities of the febrile miasm itself, by the varying proportions of the co-operative agents of moisture, heat, stagnant air, and other auxiliaries which have not yet been detected, in their relation to each other in different places and seasons."

Whether capable of originating from other causes than marsh-miasm.

How far the yellow fever is capable of *origination* from any other cause than febrile miasm from marshy lands, we cannot at present determine. When, however, it has once firmly established itself and raged with severity, it is now very generally admitted that the effluvium from the body of the affected "is loaded with miasm of the same kind, completely elaborated as it passes off,"—and that the disorder is from this time capable of communicating itself by contagion. And, from the statement already given†, it appears far more probable that the fever at Cadiz in 1800, and that at Malaga in 1803, had their *origin* in contagion, or, in other words, in febrile miasm produced by a decomposition of the effluvium from the human body, than from the same miasm issuing from a decomposition of marsh-lands. And on this account I have rather preferred the trivial name of *yellow* to that of *paludal* fever, which is too limited to express its source in every instance.

Secondarily produced and communicable by contagion.

Sometimes perhaps primarily thus produced.

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* Vol. II. p. 75. § 3.

† Ibid. p. 73.

Gen. III. Spec. II. ϵ E. malignus flavus. Yellow fever.

From the different impressions produced on febrile miasm under these diversities of origin and adjuncts, we find, independently of other discrepancies, that the fever it excites sometimes assumes a caumatic or inflammatory cast, sometimes a typhous, and sometimes a synochous, or, in other words, begins with the first and runs rapidly into the second or third. Generally speaking, the variety before us evinces the last of these characters, as does also the variety we have just treated of: the two varieties that yet remain will afford examples of a typhous and inflammatory bearing.

Remittent fever, from incidents, evinces different forms.

Yellow fever generally the synochous.

Ordinary progress.

Its ordinary progress amongst those who are fresh to the tainted atmosphere is thus accurately described by Dr. Moseley, who, from its resemblance to the causus of Hippocrates, denominates it *endemial causus*. "When a new-comer is seized with a sudden loss of strength, and a desire of changing, for rest, into every position without finding it in any, those symptoms which constitute the *endemial causus* may be expected. The following day, but sometimes within twelve hours from the first indisposition, the violence of the disease will commence thus: There will be a faintness and generally a giddiness of the head, with a small degree of chilliness and horror, but never a rigor. Then immediately will succeed a high degree of fever with great heat, and strong beating in all the arteries of the body, particularly observable in the carotid and temporal arteries; flushings in the face; gaspings for cool air, white tongue, but tinged with yellow, after the retchings have commenced; excessive thirst, redness, heaviness and burning in the eyes; heaviness and darting pains in the head, and small of the back, and often down the thighs; pulse quick, generally full and strong; in some cases quick, low, and vacillating; skin hot and dry; sometimes with a partial and momentary moisture; sickness of the stomach from the first, which increases with the disease; and, immediately after any thing is taken to quench the thirst, retchings succeed in which bilious matter is brought up; anxiety with stric-

First stage.

Gen. III. Spec. II. C. E. malignus flavus. Yellow fever.

ture, soreness, and intense heat about the præcordia; great restlessness; heavy respiration; sighing; urine deep-coloured, and but little in quantity. This is the first stage of the fever; and may continue twenty-four, thirty-six, forty-eight, or sixty hours, and this constitutes its inflammatory period.

Second stage.

"The second stage begins with an abatement of many of the preceding symptoms, and the rise of others: sometimes with a deceiving tranquillity, but with perturbation if the patient should fall into a sleep: then a yellow tinge is observed in the eyes, neck, and breast; the heat subsides, and sometimes with a chilliness; but not with that sort of strong rigor which, when it happens, terminates the disease by sweat, or by copious, bilious evacuations upwards or downwards. The retchings are violent and turn porraceous; the pulse flags, but is sometimes high and sometimes soft; the skin soft and clammy; the urine in small quantity, and of a dark croceous colour; the tongue in some cases is dry, harsh, and discoloured; in others, furred and moist; there is confusion in the head and sometimes delirium; with the eyes glassy. This stage of the disease sometimes continues only for a few hours, sometimes for twelve, twenty-four, thirty-six, or forty-eight hours, but never longer.

Third stage.

"In the third and last stage of the fever, the pulse sinks and becomes unequal and intermittent, sometimes very quick; frequent vomiting with great straining and noise in vomiting, and what is brought up now is more in quantity, and has the appearance of the grounds of coffee, or is of a slate colour. Nothing can be retained in the stomach; difficult breathing; tongue black; cold clammy sweats; eyes hollow and sunk; yellowness round the mouth and temples, and soon after over the whole body."

Closing scene.

These symptoms become gradually more aggravated, accompanied with subsultus tendinum, black urine, deadly coldness of the limbs; delirium, faltering speech; hemorrhage, or oozing of blood from the mouth and

Gen. III. Spec. II. ϛ E. malignus flavus. Yellow fever.

nostrils, corners of the eyes and ears; black bloody vomiting and stools; vibices, hiccough, muttering, coma, death.

General remarks.

After the first prostration of strength, the disease runs on violently till the sensorial power is exhausted. Through its entire course, till the patient is sinking, the intellect is not particularly disturbed, and the organs chiefly affected are the abdominal; those which, for reasons already assigned *, principally suffer in the malignant autumnal remittent of our own country; more especially the stomach and the liver. Hence the intense heat and anxiety about the præcordia, the saffron dye of the urine, the yellow tint of the skin, and the vomitings first of a bilious and afterwards of a chocolate or sanguineous colluvies.

Rapid rush to the second and third stages in some cases.

In some cases the disease opens with great vehemence, and rushes forward at once to its acme, constituting the second stage of Dr. Mosely. The patient is sometimes cut off in four-and-twenty hours: and, from the violence so suddenly committed on the liver, its proper function is instantaneously suspended, and, instead of an excessive emulgence of high-tinted bile, a chlorotic secretion takes place, which, forced into the sanguineous system, gives a ghastly lividity to the entire surface. Shortly after which, if the patient live long enough, the gorged blood-vessels of the inflamed and gangrenous liver itself, and sometimes also of the spleen or stomach, give way, and repeated tides of dark granulated grume, like the grounds of chocolate, are ejected by the mouth.

Black vomit.

Description of the disease in its rapid march; by Pym, called Bulam fever.

Mr. Pym has very forcibly described this overwhelming onset of the disease in the following terms: "There is *at the first attack* a peculiar shining or drunken appearance in the eyes; the head-ache is excruciating and confined to the orbits and the forehead; has no remissions; when it terminates favourably, is rarely attended with yellowness of the skin, which, if it do take place, is

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* Epanetus malignus, Vol. II. p. 139.

GEN. III. SPEC. II. € E. malignus flavus. Yellow fever.

is of a very pale lemon colour. It runs its course from one to five days, is attended with a peculiar inflammation of the stomach, which, in most cases that prove fatal, terminates in gangrene, or in a diseased state of the internal or villous coat of that organ, accompanied with a vomiting of matter resembling coffee-grounds, and a livid or putrid appearance of the countenance which it is impossible to describe; but those wishing to form an idea of it may see its fac-simile in the countenance of any person with a florid complexion, during the burning of spirit of wine and salt in a dark room, as is practised in the game of snap-dragon during the Christmas gambols *."

In this state, unquestionably contagious,

In this state the disease is unquestionably contagious: and as Dr. Cullen has laid down contagion as a distinctive character of fevers originating from human effluvium, in contrast with those originating from the effluvium of marshes, Mr. Pym has endeavoured to draw a line of distinction between yellow fever in this state of intensity and in its ordinary career; contending that the former (to which he limits the name of Bulam fever) is in every instance derived from human effluvium, and consequently that the two must of necessity be distinct diseases. And to make the distinction still clearer, he has ventured to assert that the symptom of a more pallid or bloated countenance, together with that of black vomit, or the discharge of coffee-like grounds from the stomach, is peculiar to the contagious fever, and is rarely if ever an attendant on that produced by marsh-miasm even in its most impetuous and fatal course.

and hence supposed to be distinct from yellow fever.

But this supposition at variance with the disease, as it has appeared in different places.

This distinction, however, is in both instances at variance with the history of the disease as it has occurred in most other parts of the world, and more especially with respect to the symptom of black vomit, which in its last stage or severer incursions, is common to it from whatever source derived. It occurred more especially

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* Observations upon the Bulam fever, &c. 8vo. 1815.

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Yellow fever at Antigua, as described by Musgrave.

in the fatal epidemic of Antigua in 1816, which was decidedly an offspring of marsh-effluvium. The island had for some years, observes Dr. Musgrave *, at whose description we have already glanced slightly, been peculiarly healthy: and the disease first showed itself in a swampy part of it, and amidst new-comers who were sailors, but from a healthy ship, and themselves in good health on first landing. It soon spread widely, and at length indiscriminately among all ranks and conditions, and situations—among blacks and whites, the newly arrived, and the oldest settlers in town and country.

All the varieties exhibited in this epidemic.

Nothing was better calculated than this fever to show that almost all the different kinds of fever that occur to us, are capable of issuing from a common source or miasm, merely modified by contingencies: for in Antigua they all occurred in different individuals. The disease sometimes *commenced* as an intermittent or remittent, and sometimes in a continued type; it sometimes ceased in four or five days, which was its usual course, and sometimes *terminated* in an intermittent. The head was in some cases chiefly affected; in others the stomach, liver, or some other organ: sometimes the patient died without hiccough or black vomit, though he rarely recovered where these symptoms appeared; Dr. Musgrave recollects but one instance. Recovery was no exemption against a second attack. In new-comers the tint was of a lemon hue; in native or assimilated constitutions, of a deep orange. The state of the atmosphere at the commencement of the disease presented nothing peculiar.

The Bulam and Antigua fever compared, and identified.

In the midst of the discrepancy between these two accounts, there is still much that is concurrent, and quite enough to establish the identity of the two diseases, if an abundance of other evidence to the same purpose were not at hand. The fever of Mr. Pym, specifically characterized by black vomit, is represented as being peculiarly dangerous and fatal; in that of Dr. Musgrave, this sym-

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* Medico-Chirug. Trans. Vol. IX. p. 92.

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ptom only occurred in the most dangerous cases of the malady. According to the latter, the severest and most deadly attacks were amongst the new-comers; the mildest, amongst the natives or those whose constitutions were assimilated to the climate. The yellow hue of the former (and I have already endeavoured to account for this) was of a *deep orange*, that of the latter, a *lemon colour*. Mr. Pym describes three species of fever as common to warm climates, but which differ from each other in their mode of origin, and diagnostic character. In that of least danger, the colour of the surface, he tells us, is of "a *very deep yellow*;" in that of higher danger, it is of "a *deep yellow*;" and in the disease before us, which is by far the most fatal, where there is any yellow at all, it is of "a *very pale lemon colour*;" which is, in effect, the very hue ascribed to the severest cases of the Antigua fever by Dr. Musgrave, as the "very deep yellow," or "orange," is to the mildest. So that, examined by their external livery as well as their internal disorganization, there can be no doubt that the two diseases are the same. Mr. Pym appeals peculiarly, as a distinctive character of the Bulam fever, to the deadly and chlorotic paleness exhibited by the countenance, in its latest stage, or most fatal incursion. But even this only shows that, in such case, the disease makes a mortal attack upon the larger viscera, and especially the liver, from the first; and demonstrates the proposition I have ventured to lay down, that in proportion as this organ is severely affected is its inability to secrete proper bile or indeed bile of any kind: and, consequently, that if the irritation only reach a certain point, the secernents will be stimulated to emulge a larger quantity and of a deeper hue; a considerable portion of which, in consequence of such irritation extending to the neighbouring absorbents, will be sent back into the sanguiferous system, and produce the orange tinge, which, in the description of both these writers, peculiarly marks the disease before us in its less fatal attacks. While, if the febrile incursion be so violent as totally to derange the function, and still more the structure of the liver, no bile

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will be secreted at all, or if secreted, less in quantity and consequently less diffusive in colour; and hence only conveying a chlorotic or livid tinge to the face, which at the same time exhibits a bloated fulness from effusion or debility of vascular action.

Discrepancies reconciled.

Yet, after all, it is not denied by Mr. Pym, nor, so far as I know, by any of the writers on the American or Andalusian fever, that the yellow fever from marsh-miasm ever evinces either of the symptoms that are so essentially ascribed to the bilious remittent produced by contagion, but only that "it is rarely, if ever," to adopt Mr. Pym's own words, "attended with the fatal symptoms peculiar to the Bulam fever, viz. the black vomiting, and a peculiar bloated appearance of countenance."

Chiefly dependent upon Cullen's hypothesis.

There would, however, be an almost insurmountable difficulty in reconciling these different descriptions of the same disease, in consequence of Dr. Musgrave's telling us, very decisively, that not a single instance occurred in the Antigua fever of its being received by contagion, were there not strong reason for believing, as I have already observed on another occasion *, and hence need not go over the ground again, that this explicit writer suffered himself to be deceived upon this point; most probably, like Mr. Pym, from too close an attachment to the doctrine laid down by Dr. Cullen, that the fever from marsh-miasm does not produce contagion, which is specifically a result of a fever from human effluvium.

Bilious remittents produced from both marsh and human effluvium.

Evidenced in that of Philadelphia, 1793.

It is impossible to peruse the history of bilious remittents in warm climates offered from all quarters, without seeing that it may and does originate from both sources; each sometimes operating alone and sometimes in conjunction with the other, as was probably the case at Antigua, and certainly the case in the yellow fever that raged at Philadelphia in 1793; in which, says Dr. Rush, there were for several weeks two sources of infection, viz. exhalation and contagion. The exhalation infected at

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* Vol. II. p. 68.

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the distance of three and four hundred yards; while the contagion infected only across the streets. The more narrow the streets, the more certainly the contagion infected. Few escaped it in alleys. After the twelfth of September, the atmosphere of every street in the city was loaded with contagion; and there were few citizens in apparent good health, who did not exhibit some mark or other of it in their bodies, particularly a preternatural quicknesss in the pulse, "which occurred in negroes as well as in whites; and in a few who had had the disease before."

General result.

That febrile miasm produced from human effluvium is less volatile than that from marsh-miasm, and consequently more limited in its range of infection, is consistent with common observation, and a fact I have already endeavoured to explain. It is sufficient to observe, on the present occasion, that the disease thus issuing from two distinct sources was one and the same in its general symptoms, and yielded to a like treatment: thus establishing satisfactorily, what indeed Dr. Rush himself does not seem to have apprehended, that, though remotely issuing from two distinct sources, it was immediately excited by a common miasm thus doubly generated, and which was only modified in its action by the nature of its origin, or by contingent powers.

Treatment different by different practitioners.

Unfortunately the practitioners in warm climates have differed as much in their therapia as in their etiology: and apparently the cause that has produced the one has produced or greatly influenced the other. Mr. Halliday, alarmed at the debility which the system will have to encounter in the second stage of the disease, or as soon as it has run through its inflammatory career, shuddered at the thought of the lancet; commenced with slight purgatives of sulphate of magnesia and manna, and immediately afterwards had recourse to the bark. The practice of Dr. Hillary was something less timid; for he allowed an abstraction of from twelve to twenty ounces of blood on the first, and even in a few cases again on the second day, according to the patient's strength

Some dread the lancet.

Some use it moderately.

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and constitution. While Dr. Rush, on the other hand, regarding the inflammatory impetus as the sole cause of danger, boldly resolved to lay prostrate if possible the morbid Hercules at its birth, by bleeding, according to the state of the pulse, two or three times a-day during the first two days, and by following up the same plan as long as a single germ of an inflammatory diathesis should continue manifest. "I paid no regard," says he, "to the dissolved state of the blood, when it appeared on the first or second day of the disorder, but repeated the bleedings afterwards, in every case, when the pulse continued to indicate it. It was common to see sizy blood succeed that which was dissolved. The dissolved appearance of the blood I supposed to be the effect of a certain action of the blood-vessels upon it. The presence of petecchiæ did not deter me from repeating blood-letting where the pulse retained its fulness or tension." And he affirms, that both petecchiæ and vibices disappeared in various cases after bleeding. This plan he often pursued through the fifth and even the seventh day, in the course of which period, from a hundred to a hundred and twenty ounces of blood were frequently taken away by six or eight applications of the lancet.

Others unsparingly.

Rush's practice as to bleeding;

His purgative plan was not less alert. Ten grains of calomel and fifteen of jalap, was the force with which he opened his remedial attack, and which he repeated every six hours, till the alvine canal was effectually evacuated. This mode of treatment, he tells us, he was led to by accident; and with it he became as successful as he had been unsuccessful under the tamer and more established method.

as to purging;

highly successful.

Yet it is the boast of those who have pursued this tamer, and formerly more established method, that, though quicker and less striking, it has, in the general balance of the account, proved more salutary than the formidable plan of their antagonists.

The tamer plan also successful,

There is not, however, necessarily any opprobrium medicorum in this discrepancy; for it is probable that in different situations or under different circumstances, both

This discrepancy reconciled.

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Where copious venesection and purging must be mischievous.

plans have been equally judicious and equally successful; for we have seen that the disease under different incidents and coadjuvants has exhibited every variety of violence, and inclined to almost every variety of febrile type. Where there is not much impetuosity in the onset, no great derangement or prognostic of inflammatory congestion in the larger viscera, where the remissions are regular, and the epidemy is pretty uniform in its character, large and repeated bleedings, as a general rule, must prove mischievous. They will not shorten the career of the disease, but they will convert the remittent into a continued fever: and we shall in the latter stage of its course stand woefully in need of that strength which we shall have squandered away at first, if we have commenced with profuse venesection.

Where these must be beneficial, and ought to be employed.

On the contrary, if the disease make its incursion with great impetuosity; if the pulse be full and strong, or even if it be only hard, and there is great tendency to inflammatory congestion in any of the larger organs, as the head, the chest, or, as is far more common, the stomach, the spleen, and the liver, we cannot well be too bold both in bleeding and purging; and the plan laid down by Dr. Rush is by no means an exaggeration of what ought to be pursued. It may be, that eight-and-forty, or even four-and-twenty hours are the whole we have to work in; and unless we can, so to speak, stifle or lay prostrate the sensorial power, and thus completely break down the inflammatory diathesis by debilitating and relaxing the living fibre or solidum vivum, rather than by diminishing the moles movenda, the organs mostly affected will in all probability become gangrenous in a day or two, the oppressed blood-vessels will give way, and we shall have a chlorotic or livid skin, cold extremities, black vomit, and all the other apparitors of death, before the tamer plan of aperients and diaphoretics could have time to produce the slightest impression on the system. Generally speaking, it will be best to bleed in an erect position, for the sensorial excitement, which is what we are chiefly to aim at, is best cut down by syncope, which an erect position will soonest induce; and we may, hence, save the expense of several subsequent bleedings.

Hence the success of an active plan no reflection on those who have been guided by circumstances to a one less bold.

There is no doubt that by a praxis thus active and resolute, very vehement attacks of the yellow fever have sometimes been subdued in a few days. But let not those who have thus triumphed conceive that by the same process they would have as soon put to flight less violent incursions of the same disease that have been treated in a different manner; for the more acute the disease, the shorter its duration, in most instances; and hence, had no medical treatment whatever been resorted to, the fever might have run through its course, whether fatally or happily, in a less period than if it had commenced more leisurely and insidiously. Yet it is very far from being always that an early return to health is the consequence of this daring practice, however judiciously it may be had recourse to, and though it may have been the only means of rescuing the patient from death; for the double debility induced by the disease and its remedy have often laid a foundation for dropsies and other cachexies, which have required years to master, and which have sometimes never been mastered at all.

Pinckard's account of his own attack.

Dr. Pinckard, in his "Notes on the West Indies," has given a very interesting description of his own sufferings under this disease, and of the remedial process to which he had recourse. His attack commenced in the more common manner, slowly and insidiously, and demanded eight or nine days to reach its acme. His head, stomach, and at last his bowels, were severely affected, especially the first; but his intellect continued sound; and, though the symptoms were vehement, there seems to have been little tendency to that violent visceral inflammation which in the stage of debility is so apt to produce gangrene; and consequently he had no black vomit. He lost twelve or fourteen ounces of blood at the commencement of the disease, and took a strong dose of calomel, which considerably relieved the pain in his head and eyes, and diminished

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the restlessness; but the thirst, heat, and dryness of the skin were still intense; and his weakness became extreme. Affusions of cold water, old hock, opium, and bark, were made use of in profusion, and each seemed to afford great relief. Yet on the subsidence of the fever, he represents his feebleness as most deplorable, and such as it appeared impossible to recover from. Here a mere use of the lancet could have been of no avail, and, had not the author most judiciously forbade its further employment, in all probability he would never have been the historian of his own case*.

Mr. Pym speaks with a very just discrimination upon this subject, in observing, that while the Bulam fever, or the disease in its most violent attack, is relieved by free venesection, the yellow fever more properly so called from the brighter hue on the surface, or, in other words, that which is slighter in its incursion, will not often endure the lancet. Dr. Musgrave's statement seems to oppose this assertion, for he distinctly tells us that "blood-letting in both forms is our sheet-anchor; the only pillar on which we can securely rest any hope of *extensive* success." The Antigua fever seems to have exhibited great severity in most instances, and hence called for a courageous course of practice with perhaps few exceptions. Yet the following paragraph proves that it did admit of exceptions, and softens down almost to unanimity a clash of opinion and mode of cure which after all is more ostensible than real; "we have repeatedly," says he, "with success taken upwards of forty ounces of blood at one bleeding. With equal success we have in several cases renewed the bleeding up to the third, and even the fourth time; but generally speaking those which require such reiterated evacuation, evince an obstinacy NOT LIKELY TO ADMIT OF A FAVOURABLE RESULT UNDER ANY MODE OF TREATMENT. IT MUST ALSO BE REMEMBERED THAT EVERY ONE WHO APPLIES FOR ASSISTANCE

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* Vol. III. Letter xii. p. 134.

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IS NOT ALIKE ABLE TO BEAR THIS LIBERAL DEPLETION." It only needs to be observed further, that the bowels were emptied as they ought to be by calomel or jalap, or some other active purgative; the head was shaven, and cold ablution preferred ordinarily to cold affusion, because of the fatigue endured under the latter. Bark was then instantly given, and, where the stomach would bear it, in the powder. Mercury, with a view of exciting salivation, was seldom tried, and not relied upon. In effect, in the milder cases it is not wanted for this purpose, and, in the more urgent, there is no time for its use.

γ E. malignus Causus. Ardent remittent.

How described by Hippocrates.

There is another variety of malignant remittent which has been known to medical practitioners from the time of the Greeks, though less frequent than the yellow fever, and which, by Hippocrates, has been denominated CAUSUS; as it has by later writers, who have only translated the Greek term, been called "FEBRIS ARDENS, ARDENT OR BURNING REMITTENT". In Hippocrates it is briefly desribed as a fever, characterized by extreme heat, violent thirst, a rough and black tongue, complexion inclined to yellowish, saliva bilious. There is commonly an acute aching in the head, nausea, great anxiety of the præcordia, with frequently a gnawing pain at the stomach. The bowels are unusually costive, particularly at the commencement of the disease. The tongue, mouth, nostrils, and, indeed, the whole surface of the body is parched and fiery-hot, whence, indeed, the Greek name for the disease; the pulse is full and strong: the voice hoarse; the breathing short and quick, with sometimes a slight cough, and occasionally delirium: Dr. Moseley conceived it to be the yellow fever we have just described; to which, indeed, it makes a near approach, though it has several distinctive symptoms. The burning heat is more intense, the thirst more intolerable; while the stomach is less irritable; and will bear vomiting with advantage: there is no black vomit at any time; and, in the second stage, the chilli-

How distinguished from yellow fever.

Gen. III. Spec. II. γ E. malignus Causus. Ardent remittent.

ness which, in the yellow fever, is merely accompanied with horripilation, and is a mischievous symptom, in the causus is accompanied with a smart rigor which terminates in a copious and salutary sweat. The attack moreover seldom lasts more than four days: and is usually terminated by a critical diaphoresis, vomiting, diarrhœa or nasal hemorrhage: and, if these do not carry it off, it generally proves fatal.

Causes various.

Probably febrile miasm.

Treatment. Cold drinks. Cold water.

It chiefly attacks the young and the vigorous, who bear the attack better than old persons. The causes to which it was formerly ascribed, are, long exposure to the heat of the sun, great fatigue from undue exercise or labour, or too heating a diet. It has of late, however, been supposed, and with much plausibility, from its frequent occurrence towards the autumnal equinox, and especially from its resemblance to the yellow fever, that, like the latter, its ordinary remote cause is the miasm of swamps and marshes. And, if so, it affords us a proof that, under certain modifications, febrile miasm issuing from this source may, as I have already suggested, produce a caumatic or inflammatory, as well as a synochous or typhous tendency, in constitutions predisposed to this character of fever: for the causus is, in fact, whatever be its cause, a vehement inflammatory remittent; and hence its treatment is not difficult. Bleeding and purging are here unquestionable. And, when these had been carried to a sufficient extent, Hippocrates added the use of cold applications in every way; the coldest possible drinks; the coldest possible clysters, and ablution with cold water applied to every part of the body*. Under proper regulations there is no doubt of the advantage of such a treatment, and the medical records of the continent, as well as of our own country, throng with cases in which it has been found serviceable. Marquet recommends the application of cold air as well as of cold water; and gives an instance of a rapid cure

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* Περὶ Παθῶν. p. 518, l. 48. 51. p. 419. l. 37.

Gen. III. Spec. II. γ E. malignus Causus. Ardent remittent. Cold air.

in one who in a state of delirium exposed himself naked to the cold of the atmosphere out of doors*. And on this account Schäffer advises that the patient, in any acute fever accompanied with dry burning heat, should be carried forth from his chamber, on a mattrass, and thoroughly ventilated abroad†.

δ E. malignus asthenicus. Asthenic remittent.

In the preceding varieties, the malignant remittent has shown a tendency to an inflammatory or a synochous career. Under particular circumstances, however, it evinces a like inclination to a deep nervous depression, sensorial debility, or a typhous character from the first.

Originates both from marsh and human effluvium.

And this, whether the febrile miasm originate from a decomposition of marsh, or of human effluvium; for the records of medicine furnish us with innumerable instances of both. In the two cases, however, there are a few slight variations in the range and mode of its action, the laws of which I have already endeavoured to lay down as far as we are acquainted with them‡. This modification of the disease, therefore, is best distinguished by the name of ASTHENIC REMITTENT.

The most fatal cases from human effluvium.

The epidemics of this kind that are accompanied with most mortality are those which arise from a decomposition of human effluvium in the midst of filth, poverty, or famine, great heat and moisture, crowded mutitudes, and a stagnant atmosphere: for here we have almost all the auxiliaries of febrile miasm operating for its production.

Exemplified in the late epidemics of Cadiz and Malaga, chiefly of this variety.

The remittent epidemics of Cadiz and Malaga seem chiefly to have been of this kind: and they are the common pestilences of dis-spirited armies, maintaining their ground with difficulty in the midst of great carnage, surrounded by the dead and the dying, reduced to short provisions, and worn out by the fatigues of the campaign. The writings of Sir John Pringle are full of examples of this kind; and Professor De Haen has given a striking description of the same in his ac-

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[*] Observations sur la Guerison de plusieurs Maladies.

[†] Versuche. I. p. 164.

[‡] Vol, II. p. 75.

Gen. III. Spec. II. ℥ E. malignus asthenicus. Asthenic remittent. Noted epidemic of Breslaw.

count of the contagious epidemy that committed such tremendous havoc throughout the Prussian army, at Breslaw and its vicinity, in the middle of the last century, constituting the disease to which M. de Sauvages has given the name of tritæophya Vratislaviensis. It was peculiarly distinguished by irregular action, great debility, and overwhelming dejection of mind. The lipyria, or coldness of the surface, with which the disease opened, rarely yielded to any general re-action, for the extremities seldom became warm, and were often rigid and convulsive; at the same time that the interior parts burned like a fire; the head and stomach suffered with acute pain; there was great anxiety about the præcordia; and so exquisite a soreness over the entire surface that the patient had the greatest dread of being exposed to the contact of the external air, a mere change of the temperature being intolerable. De Haen himself at length became a prey to the infection, and his attack commenced as thus far stated. On the fourth day, he tells us, all his symptoms were worse, his feet quite chilled, but his hands red, and agitated with convulsive motions; he had occasional vomitings, and was terrified by the image of impending death. On the eighth day the pulse was convulsive, and he was continually crying out from his pains. On the ninth, delirium, and a rejection of grumous blood from the stomach. On the eleventh, perspiration and a tranquil pulse, but the voice was broken, the speech was interrupted, and the teeth grated. On the twelfth, the jaw was convulsed, there was a sardonic laugh and deafness. On the fourteenth, an icy coldness covered the whole body, accompanied with a cold sweat, but a frequent use of ablutions afforded relief. On the eighteenth, he had a vivid delirium, but fainted on being taken out of bed; which was succeeded by hunger, copious sweats, and profound sleep, with an intolerance of noise. At this time, every thing appeared new and extraordinary; a feeling described by many sufferers as soon as the violence of the disease begins to abate, and which Dr. Pinckard has very strikingly noticed in his

De Haen's statement of his own case.

Gen. III. Spec. II. δ E. malignus asthenicus. Asthenic remittent.

own case. The symptoms varied considerably from this period, and he had still many dangers to contend with. He recovered, however, though very slowly, and with numerous draw-backs; for on the thirty-sixth day he had a cholera, and on the forty-eighth his skin scaled off, and he lost his nails.

Sequel of the disease.

Towards the close of the disease, the skin was covered with a scabid or ichorous eruption, rather than petechiæ; evidently from debility of the capillaries: a fact that has often occurred even in the slighter attacks of this variety of remittent in our own country, when it has occasionally broken out, as in 1765, among the troops stationed in the vicinity of Portsmouth, and is particularly noticed by Dr. Lind. In this last case it was often suspected to be the itch, to which it had a very near resemblance: and it is highly probable that in many instances it was so, and that the acarus *scabiei* found, in the sores, a convenient nidus for the deposit of its eggs.

Exemplified as produced from stagnant marshes. Cape Coast, Africa. Gombrow on the Persian coast.

There are situations, however, in which the febrile miasm producing this low variety of remittent is generated by a decomposition of the stagnant matter of humid marsh-lands; such chiefly are the regions about Cape Coast, in Africa, especially when visited by the foul and smouldering harmattan, and about Gombrow, or as Sir John Chardin calls it, Bander-Abassi, on the Gulf of Persia*: in which last place the mortality is so severe between the months of April and September that the deaths are ordinarily calculated at nine out of ten of the inhabitants: and this notwithstanding that most of them retire during such period towards the mountains, and all mercantile concerns are relinquished; so that, says the Chevalier, "la moisson est fermée comme un parle." The diseased are commonly removed higher up the country as soon as they sicken; but, whether removed or not, they usually die in four or five days.

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* Voyage du Chevalier Chardin, &c. Tom. IX. p. 511—518.

GEN. III. SPEC. II. δ E. malignus asthenicus. Asthenic remittent.

Danger augmented by dense offensive vapours.

It is possible that in both these places the danger of the disease may be augmented by the dense and stinking vapour that is perpetually blowing upon them during the pestilential season, the "puantes vapeurs de la mer," as Sir John expresses himself, "qui faient bondir le cœur la première fois qu'on le sent." These on the African coast are impregnated from the impenetrable mangrove swamps of the interior of Guinea, and, on the Persian, from the saline and sulphurous exhalations of the several adjoining islands which the winds of the season pass over in their periodical sweep: and the copious disengagement of hydrogene, whose presence the intolerable stench seems to indicate, will account in no small degree for the deficiency of living power, which so peculiarly distinguishes the malignant remittent in these quarters. In the latter region, indeed, some such debilitating influence seems to operate habitually: for the ingenious author thus quoted adds, that "the nations carry in their complexion and constitution the proofs of their malignant atmosphere, being yellow and ghastly from the age of twenty-one, and decrepid at thirty."

Medical treatment.

Bleeding in this disease can never form a part of the general practice, how necessary soever it may be in particular cases, where atonic congestion may oppress the head or the heart. The first requisite is pure air when it can be procured: the bowels must be opened and kept open by active purgatives, since, from the general disturbance of the functionary balance, there is violent action in the abdominal viscera, while the vessels on the surface are entirely torpid. To restore this balance should be our next effort: and for such purpose nothing bids fairer, or has in fact been found more successful, than the use of warm diaphoretics with opium. Cold water as a beverage, or in the form of injection, has also proved a highly refreshing tonic; frequent potations of old hock still more so; and the bark may be commenced with advantage as soon as the stomach can retain it in large doses, for here small proportions are of no avail. Ablution with cold water was also tried very generally during the malignant epidemic at Breslaw, and with very great advantage *.

Gen. III. Spec. II.

SPECIES III.

EPANETUS HECTICA.

Hectic Fever.

PULSE WEAK: STAGES OF CHILLINESS, HEAT AND SWEAT VARIOUSLY INTERMIXED, AND SOMETIMES SINGLE; THE COLD STAGE EXHAUSTING; THE EXACERBATION CHIEFLY IN THE EVENING.

Gen. III. Spec. III. Peculiarly complex and irregular:

THE symptoms of this species, except in its sweating stages, are far less violent, and consequently its duration is far longer than that of either of the preceding. Nothing, however, can more fully prove its complexity and irregularity, than the different characters given of it, and the different places allotted to it, by different authors. Sauvages and Sagar introduce it into the list of continued fevers. Linnéus, Crichton, and Parr, into the present division, or that of remitting and exacerbating fevers: Boerhaave regards it as of a mixed nature, a continued intermittent. "Febris hectica," says he, "est referenda ad febres continuatas intermittentes." Vogel and Cullen degrade it into a mere symptomatic affection. "As I have never," says the latter, "observed a fever of this kind except when symptomatic, I could not consent to admit it into the list of idiopathic fevers, which alone ought to be enumerated."

and hence differently arranged by different Nosologists.

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* Epidemia verna quæ Wratislaviam, anno 1737, afflixit. Vide Act. Nat. Curios. Tom. x.

Gen. III. Spec. III. Epanetus Hectica. Hectic fever.

By some regarded as merely a symptomatic or secondary disease.

Those who have adopted Dr. Cullen's opinion, have usually contemplated it as a mere effect of absorbed pus. Dr. Heberden seems to think it dependent upon a local cause, but that irritability in any diseased organ, which cannot be brought into a healthy state, will excite it as effectually as pus introduced into the system.

By others, as an idiopathic affection.

Supposed by J. Hunter to be derived from both sources.

Why not always produced from absorbed pus.

Galen, on the contrary, Mr. John Hunter, and Dr. Willan, contend, that hectic may be, and often is, a strictly idiopathic affection. The second of these valuable writers regards hectic fever as of two sorts, symptomatic and idiopathic *. The first he ascribes entirely to local irritability, and opposes the idea that it is ever produced by absorbed pus. His argument is, that if absorbed pus be capable of producing it in one instance, it ought in every instance: but this we know is not the case; for we have had large buboes and even empyemas removed by absorption suddenly, and yet no hectic has taken place. He does not think that more pus is absorbed during the existence of hectic fever than when no such fever is present: but, admitting that this should be the case, he would rather ascribe the increased absorption to the hectic constitution, operating upon the abscess or sore, than to the abscess or sore operating upon the constitution; in which case the hectic diathesis is the cause, and the increased absorption is only the effect. So that even here, he regards the hectic as a primary or constitutional disease.

When symptomatic, produced by general irritability.

As a symptomatic affection, however, he refers it to a general irritability of the constitution, produced by sympathy, in consequence of "some incurable local disease of a vital part, or of a common part when of some magnitude;" and which becomes incurable from two causes; firstly, because, though the local irritation is small, the constitution is bad, and does not dispose the parts to a healing state: and secondly, because, though the constitution is good, the local irritation is so considerable

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* On Blood, Part II. Chap. IX. Sect. 1.

Gen. III. Spec. III. Epanetus Hectica. Hectic fever.

that it cannot muster up a sufficiency of remedial energy to subdue it; and hence, while sympathizing in the irritable action, falls a prey to its own efforts.

Yet, says he, it is possible for hectic fever to be an original disease of the constitution; for the constitution may fall into the same mode of action, without any local cause whatever, at least that we know of. And in this manner he accounts for its existence as an idiopathic affection. And, in effect, nothing is more common than for hectic fever to exist in patients in which we can trace no local cause whatever: and in all such cases we must either indulge in a gratuitous hypothesis, and throw our suspicions at random upon the lungs, or the liver, or the kidneys, or the heart, or the mesenteric glands, or whatever other organ a few casual symptoms may suggest to the fancy; or we must at least act upon the principle of its being an idiopathic affection, even though we should refuse, in terms, to admit that it is so.

Idiopathic hectic admitted by Perceval.

"I willingly subscribe," says Dr. Perceval of Dublin, in his manuscript comment upon the author's Nosology, "to idiopathic hectic; and have known it to last three months without any pulmonary affection, and then to break out in the lungs."

Habitus phthisicorum of Stoll.

There seems, indeed, great reason for admitting with Dr. Stoll, a *habitus phthisicorum* *, a hectic diathesis or temperament; the features of which are for the most part strongly marked, and are to be found in a fair skin, blue eyes, yellow hair, lax fibre, and sanguine disposition.

Most of the causes of fevers produce it, where this exists;

And, wherever this exists, it is probable that most of the causes of other fevers, operating upon it, will produce a hectic. And we can hence readily account for the examples brought by different authors of its being excited by diseased actions or affections of the heart, stomach, mesentery, liver, pancreas, lungs, or brain; by a suppression of various exanthems or other eruptions, or of various habitual discharges natural or morbid; by other

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* Prælect. p. 19.

Gen. III. Spec. III. Epanetus Hectica. Hectic fever.

and hence a frequent sequel of various exanthems.

Has been produced by dyspepsy.

Probably by febrile miasm.

General character of the disease.

Whether pellucid urine be a symptom.

fevers; by chronic inflammations or abscesses. It is well known to be a common sequel to the measles, occasionally so to the small-pox, and in a few instances to rosalia or scarlet fever. It may hence be a result of dyspepsy; and one case is said to have been produced by eating bacon, which remained undigested in the stomach for a term of eighteen months, when it was disgorged by sickness, and the hectic symptoms disappeared *. And it is hence possible that hectic fever may occasionally spring like other remittents from febrile miasm.

The character of the disease is well given by Mr. John Hunter in the following words: "Hectic may be said to be a slow mode of dissolution; the general symptoms are those of a low or slow fever, attended with weakness, but more with the action of weakness than real weakness; for, upon the removal of the hectic cause, the action of strength is immediately produced, as well as every natural function, however much it was decreased before. The particular symptoms are debility; a small, quick, and sharp pulse; the blood forsaking the skin; loss of appetite; often rejection of all aliment by the stomach; wasting; a great readiness to be thrown into sweats; sweating spontaneously when in bed; frequently a constitutional purging."—To which he adds, "the water clear." There is, in reality, much difference of opinion upon this last point. Dr. Heberden has observed that the same irregularity which accompanies most other symptoms of the disease attends this also; that the urine is equally clear or turbid in the exacerbations and the intervals; sometimes clear in the first and turbid in the second; and sometimes turbid in the first and clear in the second: while Dr. Duncan, from long and assiduous attention, asserts, that the urine is peculiarly distinguished by a natural furfuraceous separation. Such is the character it has usually exhibited in my own practice: though where authorities thus clash, it is not a symptom to be depended upon as a pathognomic.

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* Arnold. Diss. de Hecticâ stomachiâ, 1743.

Gen. III. Spec. III. Epanetus Hectica. Hectic fever.

How distinguished from an intermittent.

From the frequent approaches which the hectic makes towards a perfect apyrexy, it is sometimes apt to be confounded with an intermittent; but there is rarely any remission in which the pulse is not at least ten strokes in a minute quicker than it ought to be; and by this it is sufficiently distinguishable, as it is also by the greater irregularity of its different stages, and indeed of all its symptoms.

Stages of the disease irregular in their order.

It is owing to this last feature that, sometimes, the exacerbation commences with a chilly fit, and sometimes without; and that, when there is a chilly fit, sometimes it is immediately succeeded by heat, but sometimes by perspiration, without any intervening hot fit; while occasionally the cold fit only leads to heat, or even terminates singly without either heat or perspiration. Hence the exacerbations must vary in duration: but even where every stage is present and succeeds in regular order, the duration of the entire exacerbation is almost equally uncertain, insomuch that it is seldom that three exacerbations of equal length recur in succession. The remissions will sometimes extend to ten or twelve days, without a single intervening pyrectic symptom: and sometimes the cold or the hot fit, or the sweating, will be renewed several times in the same day. Yet, let the perspiration appear whenever it may, the patient is never relieved by it; but is as anxious and restless during its continuance as in the heat or chill.

Exacerbations irregular in their duration.

Sometimes attacks suddenly and violently.

Dr. Heberden* tells us, that he has sometimes seen a hectic attack persons who seemed in tolerable health, in a sudden and violent manner, like a common inflammatory fever; and, like that, in a little time bring them into imminent danger of their lives; after which it has abated, and afforded hopes of recovery. But the hopes have been deceitful, for the hectic has still been fed by some lurking mischief; and, resisting the power of medicine,

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[*] Trans. of the College, Vol. II. Art. I. p. 6.

Gen. III. Spec. III. Epanetus Hectica. Hectic fever.

has gradually undermined the patient's health and destroyed him.

More commonly slowly and insidiously.

More commonly, however, hectic fever commences slowly and insidiously, and is not suspected for some months: and the only symptoms noticeable are, lassitude upon slight exercise, loss of appetite, and a wasting of the flesh. But if these symptoms be connected with a general increase of pulse, so that the artery beats from ninety to a hundred, or a hundred and twenty strokes in a minute, there will be real ground for apprehension.

Remedial process doubtful.

This is one of many diseases in which the art of medicine has hitherto laboured in vain to strike into any direct track of cure. The real cause is commonly involved in great and impenetrable obscurity, and we can do little more than attack single symptoms as they make their appearance.

Irritable diathesis to be combated.

Where the disease is evidently symptomatic, the case must depend upon curing, or, if incurable, upon removing, when this can be accomplished, the part affected. Where idiopathic, we must combat, as far as we are able, the irritable diathesis; and above all things endeavour to strengthen, without increasing, the action of the machine.

Acids as sedatives and tonics.

The best sedatives as well as tonics are acids, and of these the vegetable will usually be found preferable to the mineral, since, on account of their corrosive property, the latter can only be taken in small quantities. They abate the febrile heat, diminish the restlessness, and frequently succeed in checking the night-sweats. And if, as is often the case, the patient be tormented with pains in the limbs or joints, resembling rheumatism, and preventing him from sleeping, we may combine the acids with opium.

Occasional aperients.

The bowels must be kept regular by gentle laxatives, and the neutral salts seem to answer this purpose better than most others. It will, however, be convenient to vary them occasionally, and sometimes to exchange them for the senna confection, or some other aperient.

Gen. III. Spec. III. Epanetus Hectica. Hectic fever.

Stimulants rarely answer any good purpose; and in many instances evidently heighten and accelerate the exacerbation. The Peruvian balsam has been given advantageously with nitre; but myrrh is a medicine of fairer promise; and beyond these we can scarcely ever venture to proceed.

Myrrh the only stimulant to be ventured upon.

The lighter bitters are certainly serviceable in many cases, and may conveniently be employed in combination with the acids: but bark, though tried in numerous instances, and with great perseverance, has not been found successful. Dr. Heberden, however, says that he never saw it do any harm in the hectic fever, and his opinion is confirmed by that of Sir Edward Hulse, after having prescribed it for forty years. Yet neither of them ever obtained proofs of any beneficial result.

The lighter bitters useful with acids.

Bark, harmless, but of no avail.

A light and regular diet, regular hours, and gentle exercise, are coadjutants of great importance. When the disease is dependant upon some local affection, the Bath waters have often afforded relief; but in idiopathic cases they usually augment the fever, aggravate the patient's sufferings, and hasten his death.

Bath waters where the cause is local.

GENUS IV.

ENECIA.

Continued Fever.

ONE SERIES OF INCREASE AND DECREASE; WITH A TENDENCY TO EXACERBATION AND REMISSION, FOR THE MOST PART APPEARING TWICE EVERY TWENTY-FOUR HOURS.

GEN. IV. Alternated by slight fluxes and refluxes of symptoms.

WE now enter upon the important genus of continued fevers, or those which run their course, not indeed without any change or relaxation whatever, as many of them were supposed to do formerly, and were distinguished by the term *continentes*, but with occasional and slight fluxes and refluxes, which bear the same proportions to the exacerbations and remissions of the epanetus as these do to the paroxysms and intervals of the anetus or intermittent. When there are two tides or fluxes within the twenty-four hours, the one occurs in the morning, and the other in the evening. The last is always the most distinct; and takes place usually between five and six o'clock, which is somewhat later than the latest of the paroxysms of genuine intermitting fevers; that of the quartan, which is the latest of the whole, usually occurring before five o'clock. It should also be farther observed that where continued fever discovers but one augmentation in the twenty-four hours, it is always that of the evening. Dr. Fordyce attempts to show that, even in a state of the firmest health, we constantly discover some tendency to a little febrile affection every evening; this he calls the natural evening paroxysm of fever; and

Morning and evening often distinguished by fluxes, especially the latter.

Fordyce's natural evening paroxysm.

to this habit he ascribes the existence of an evening increase of continued fever.

Gen. IV. Enecia. Continued fever.

The genus, thus defined and characterized, includes the three following species:—

1. ENECIA CAUMA.	INFLAMMATORY FEVER.
2. ——— TYPHUS.	TYPHOUS FEVER.
3. ——— SYNOCHUS.	SYNOCHAL FEVER.

Sauvages draws a line of distinction between these three from their respective duration, as well as from their more essential symptoms, affirming that the cauma terminates in a week at the farthest; the typhus in two, though sometimes protracted to three weeks; while the synochus reaches beyond the second, and often beyond the third week. As a general rule this remark is worth keeping in mind, but the deviations from it in all the species, are too frequent to enable us to lay hold of it in assigning their specific character.

Sauvage's line of distinction between the different species of continued fever.

Holds only generally.

SPECIES I.

ENECIA CAUMA.

Inflammatory Fever.

HEAT GREATLY INCREASED; PULSE QUICK, HARD, AND STRONG; URINE RED; DISTURBANCE OF THE MIND SLIGHT.

This species has been distinguished by a variety of names by different nosologists and other medical writers; the chief of which are, *imputrid synochus*, which is that of Galen; *imputrid continued fever*, which is that of Boerhaave; *imputrid continent*, which is that of Lommius; *sanguineous continued fever*, which is that of Hoffman; and *synocha*, which is that of Sauvages, Linnéus, Cullen, and most writers of the present day. Of these, synocha,

Gen. IV. Spec. I. Distinguished by various names,

of which the worst is synocha.

Gen. IV. Spec. 1. Enecia Cauma. Inflammatory fever.

for reasons stated in the comment to the Nosological Synopsis, is the worst; it has no clear or correct etymological meaning; it has been used in different senses by different writers, and approaches so nearly to synochus, used as extensively by most of the same writers, as to create a perpetual confusion in the minds of young students; and the more so, as the disease before us is expressly denominated synochus by Vogel, whilst most writers employ this term to import a different species of fever. On all which accounts I have judged it right to exchange synocha for cauma, a term already employed for the same purpose by Dr. Young, and which, derived from καίρω, "uro," is etymologically significant of the character of the disease it designates. The common English term *inflammatory fever* is excellent; and is in truth a direct translation of the Greek term cauma. Dr. Fordyce denominates it *general inflammation:* by which he clearly intimates, that this species of fever bears a near resemblance to the symptomatic fever produced by the local affections called phlegmasiæ, or phlogotica, which constitute the next order of the present class, to which the term *inflammations* is now commonly limited; but which Dr. Fordyce would distinguish by the term "*local inflammations.*"

And hence exchanged above for cauma.

Importing general inflammation. Fordyce's name for it.

In effect, inflammatory fever and the fever of inflammations bear the same relations to each other as the idiopathic and symptomatic hectic: in both there may be a general or a local remote cause, but the influence upon the constitution will be the same, whatever be the source of excitement. It has been doubted, however, whether cauma or inflammatory fever ever exists without a local cause; and Dr. Cullen, who does not allow that hectic fever is ever found without a local cause, distinctly affirms that he has never seen inflammatory fever existing under the same circumstances: whence Dr. Clarke, of Newcastle-upon-Tyne, who has too much generalized the subject, has struck inflammatory fever entirely out of the list of diseases, contending that even the term inflammatory ought never to be applied to fever, except-

Difference between inflammatory fever and fever of inflammations.

Whether it exists, except from a local cause.

Local cause various in its seat, as contemplated by different supporters of this doctrine.

Gen. IV. Spec. I. Enecia Cauma. Inflammatory fever.

ing when fever itself only exists as a concomitant of some local affection *: while Dr. Clutterbuck, as we have already observed †, has contended that this local cause is at all times, and under every variety of fever, an inflammation of the brain. How far either hectic or inflammatory fever may, under particular circumstances of human or atmospherical constitutions, occasionally originate from marsh or contagious miasm, it is difficult to determine; but as Dr. Cullen was peculiarly desirous of reducing all fevers to these two sources, and as, to say the least, they are not obvious sources of either of the diseases in question, his mind appears to have received some bias from this fact, in rejecting them from the list of idiopathic fevers. And as it has already been shown that this decision has laid a foundation for much of that "tug of war" in which many distinguished members of the profession have of late years been engaged, respecting the nature and treatment of particular species of fever, it is highly probable, also, that several of the more recent hypotheses concerning its proximate cause have originated from the same spring.

History of symptoms.

Inflammatory fever, as it has often occurred in the author's own practice, and in that of others who have described it, usually commences with the symptoms of an acute ephemera, and may in fact be contemplated as the same disease running on from four or five to about eleven days without intermission, or a renewal of the cold fit. It commences with a sense of languor and inaptitude for exertion, with a disrelish for food, which continues for a day or perhaps two. There is then chilliness and soreness over the surface, with nausea and head-ache, succeeded in the evening by a great increase of heat, and at night by perspiration. The bowels are usually costive, the urine high coloured, and the pulse quick and hard.

With Dr. Fordyce the grand pathognomic symptom of

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* Observations on Fevers, &c. 8vo. London 1779.

† Vol. II. p. 58.

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Pathognomic symptom, hardness of the pulse.

Hardness of the pulse described and explained.

How differs from obstructed pulse.

cauma is hardness of the pulse. This accompanies it from first to last in its simplest and in its severest state. When the disease is mild, it is hard alone; when more violent, it is at the same time full, strong, and frequent. The obstructed pulse is often confounded with the hard, and it is not easy to distinguish them without considerable practice. There is a rigidity of resistance to the finger in each, but of a different kind. In the hard pulse, it is much firmer and tenser; and is supposed by Dr. Fordyce to result from such an increase of arterial contraction as to over-balance its correspondent dilatation. It indicates, in his opinion, a very high degree of living power, and is peculiarly characterized by a tardy coagulation of the blood when drawn freely into an hemispheric bason, in consequence of which the red particles have time to subside, and leave the surface colourless or with a buffy appearance. In the obstructed pulse, on the contrary, the blood coagulates at once; and, the red particles not having time to separate, the surface is of the same hue as the cake below.

Progress of cauma.

The disease sometimes terminates abruptly and with a critical sweat, or some other evacuation on the fourth or fifth day: but more usually increases in violence, though with occasional declinations, for a week longer; during which time, the pulse rises to a hundred or a hundred and ten strokes in a minute, but continues regular; the nausea subsides, and the patient will take and retain whatever is offered to him of simple nutriment or medicine: the thirst is less violent, but the tongue is deeply furred, and the lips are parched.

Termination.

The disease is not often dangerous; and about the eleventh day gradually subsides, or yields to some critical discharge, which is usually that of a free and alleviating perspiration. The pulse soon sinks to eighty, and the chief symptom is weakness.

Different organs differently affected.

During the course of the fever, every organ suffers from its morbid and increasing impetus; but they do not all suffer alike: for in some parts there is, occasionally, a greater spasticity or tetanic resistance in the blood-vessels, to the flow of the circulating fluid than in others, whence that acute pain which is often complained of in the head or the side; in the latter case, sometimes amounting to pleuralgia. And, not unfrequently, the vessels of one part will give way more readily than those of another, and there will be a sense of heaviness and oppression in the head, the heart, or the lungs; as though some effusion had taken place, which is perhaps actually the case in some instances. If the head be much affected, delirium is a frequent result, with raving and violence, rather than the low muttering incoherence of asthenic fevers.

May sometimes, perhaps, arise from febrile miasm;

but more frequently from violent passion, exercise, or heating foods:

From the history already given of the malignant Causus, or ardent malignant remittent, it appears probable that inflammatory fever may sometimes be produced from febrile miasm, though it is commonly derived from other sources. Of these the stimulus of violent passions is, perhaps, one of the most common; and especially upon a vigorous and plethoric habit, which is the usual temperament in which inflammatory fever makes its appearance. Undue muscular exercise, heating foods, or excesses of any kind in the same habit, are also frequent causes; while another may be found in the suppression of any accustomed discharge, as that of menstruation, epistaxis, or periodical blood-letting. Suddenly suppressed perspiration is, in like manner, a frequent, perhaps the most frequent cause of any; especially when the body is very hot, and the change is effected by exposure to a temperature of great cold, applied externally or internally, as that of a current of cold air, a large draught of cold water, or plunging into a river.

suppression of accustomed discharges, or sudden perspiration.

Whether by a resorption of bile.

Some writers, as Sennert and Crichton, have supposed inflammatory fever to be occasionally produced by an absorption of bile into the blood-vessels under the excitement of a tropical sun, or of a torrid summer in milder regions; and they suppose that the bile is, in this case, possessed of a more than ordinary degree of

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acrimony, and that the symptoms are varied by a more pungent heat and more intolerable thirst, with a more scanty secretion of urine, preternaturally acrid and high-coloured.

Inflammatory fever a frequent concomitant of resorbed bile,

That bile of this description is often forced back into the system under the circumstances here supposed, is unquestionable; as it is also that inflammatory fever is a frequent accompaniment of this morbid change. But notwithstanding the above authorities, such fever seems less attributable to the reflux of bile into the blood, than to the insolation or solar excitement; which, by unduly stimulating the liver, has been the cause of an overflow of the bilious secretion. How far a more irritant or exalted acrimony may be communicated to bile thus operated upon, or what may be its effect upon the system, admitting it to take place, it is difficult to determine; but there is much reason to doubt whether genuine bile in the sanguiferous system is ever a cause of fever, or stimulates the heart or arteries to increased action. For if this were the case, jaundice would always be accompanied with inflammatory fever. Instead of which, however, we find it accompanied with atony instead of entony, or diminished instead of increased power.

but perhaps never produced by it.

Produced by vermicles in the frontal sinus.

Sauvages gives a case in which inflammatory fever was produced by a mechanical irritation of the meninges of the brain, by a lodgment of vermicles in the frontal sinus, of which seventy-two were discharged during a fit of vomiting and sneezing, from which time the patient began to recover.

These vermicles were most probably the larves of some species of the œstrus or gad-fly, which had crept up into the frontal sinus, after being hatched in the nostrils in which the parent insect had deposited her minute eggs. This is a very common affection in grazing quadrupeds, and especially in sheep, which are often peculiarly tormented, and sometimes driven almost mad by the violence of the irritation.

Stoll gives a case in which the brain, on examination

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Inflammatory fever.

after death, was found deluged with serum diluvium serosum*. But such an appearance is rather to be regarded as an effect than a cause of the disease; as an instance of cephalitis *profunda*, in consequence of the brain having suffered more than any other organ from the inflammatory impetus.

Hence the following varieties are noticeable under the present species:

α Plethoricum. Plethoric inflammatory fever.	Produced in a plethoric habit by great mental or muscular excitement, or heating foods; or by a sudden suppression of perspiration, or of other accustomed discharges.
β Biliosum. Bilious inflammatory fever.	Accompanied with an excessive secretion of bile absorbed into the sanguineous system.
γ Pleuriticum. Pleuritic inflammatory fever.	Accompanied with a violent stitch or pain in the side.
δ Cephalalgicum. Cephalalgic inflammatory fever.	Accompanied with acute pain in the head.

Remedial process.

As an inflammatory diathesis constitutes the essence of this fever, the cure must depend altogether upon a reduction of the vascular, and especially of the arterial entony: always bearing in mind the possibility that the disease may suddenly lose its inflammatory character, and rapidly pass into that of a typhus. Regulated by this view, we should generally commence with bleeding and cooling purgatives. There are a few cases, indeed, in which bleeding may be dispensed with, as when the habit is by no means plethoric, and the pulse obstructed rather than hard; but these are cases that rarely occur.

Venesection.

Cathartics.

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* Mat. Med. III. p. 294.

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SPEC. I.
Cauma.
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Treatment.

Relaxants.

Diaphoretics, or relaxants as they are denominated by Dr. Fordyce, may then be employed with advantage. Of these the tartarized antimony, the antimonial powder, or James's powder, are chiefly to be relied upon; and may be given alone, or, which is often better, in saline draughts; and particularly those formed of the acetate of ammonia. And it may not be amiss to observe here, that the acetate of ammonia is sometimes prepared in the form of crystals, and sits more easily on the stomach in this than in any other shape. When given as a liquid, it is of importance that the solution should retain the carbonic acid gass of ammonia as largely as possible; and for this purpose the union should take place in a strong close vessel. According to Bergman, nearly half the weight of ammonia depends upon the quantity of this gass which it contains; so that in a pint of the solution of the acetate of ammonia, comprising four drachms of the latter, there will be extricated, if made in the manner here recommended, little less than a hundred and sixty cubic inches of air.

Crystallized acetate of ammonia.

As the stomach is for the most part but little affected, emetics, if used at all, can only be employed for the purpose of determining to the surface; but as we can do this by the antimonial and other diaphoretics just referred to, as also by diluent drinks, it is hardly worth while to irritate the stomach in order to accomplish the same purpose. Perfect rest of body and mind, a reclined position, and a light liquid diet, destitute of all stimulants, are also indispensable toward recovery. The air should by all means be kept pure, by being constantly renewed, though without a sensible current, the temperature cool, and the clothing light and as often changed as may be necessary to maintain cleanliness.

Inflammatory fever less common than formerly;

After all, however, it is not often that examples of pure inflammatory fever are to be met with in the present day; and it is contended by very high authorities, and seems to be established by the medical records of earlier times compared with those of our own, that it is a disease far less common now than it was formerly; and that

Gen. IV. Spec. I. Cauma. Inflammatory fever. Treatment. As conjectured by Mr. Hunter.

it is seldom, to adopt the words of Mr. J. Hunter, "that physicians are obliged to have recourse to the lancet, at least to that excess which is described by authors in former times. They are, now, more obliged," continues the same writer, "to have recourse to cordials than evacuations; and, indeed, the diseases called the putrid fever and putrid sore throat are but of late date. I remember when the last was called Fothergill's sore throat, because he first published upon it, and altered the mode of practice. I remember when practitioners uniformly bled in putrid fevers; but signs of debility and want of success made them alter their practice. Whether the same difference takes place in inflammation, I do not know, but I suspect that it does in some degree; for I am inclined to believe that fever and inflammation are very nearly allied, and that we have much less occasion for evacuations in inflammation than there were formerly; the lancet, therefore, in inflammation, and also purgatives, are much more laid aside*."

Whether owing to a change in the common mode of life.

It is not easy to account for this change in the national temperament. It is common, indeed, to ascribe it to an alteration in our mode of life, which is asserted to be much fuller than that of our forefathers. "We may be said," says Mr. Hunter, "to live above par. At the full stretch of living, therefore, when disease attacks us, our powers cannot be excited further, and we sink so as to require being supported and kept up to that mode of life to which we have been accustomed."

The habits of the day do not answer to his description.

If this be a correct view of the times in Mr. Hunter's day, they have greatly altered and improved within less than half a century: for there has never been a period, since wines and fermented liquors have been introduced among us, so temperate and sober as the present. Drunkenness, which was formerly common in our streets, is now rarely met with; suppers are almost entirely relinquished; and instead of its being disgraceful, as was the

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* On Blood, &c. Part II. p. 227.

Gen. IV. Spec. I. Cauma. Inflammatory fever. Treatment.

case in 'the olden time,' for the master of the house to let his guests leave him either sad or sober, nothing is now so disgraceful as intoxication. It is true, we are got back again to a very free use of the lancet in many instances; which would seem to show that we had completed a revolution in our general temperament, as well as our general temperance; but it is not a little singular, that while the lancet is still used with comparative caution in inflammatory fever, it is chiefly employed and often unsparingly in typhus, or putrid fever. And hence, there is more reason, I fear, for suspecting a revolution in the professional fashion than in national temperament; and that the bold and the timid plans have been alternately introduced, and alternately dropped, not so much from any radical change in the constitution, as from their being found to fail, because employed as popular means, or under the influence of some favourite hypothesis on all occasions, without a due degree of clinical discrimination, or attention to the habits or symptoms of individuals at their bed-side.

SPECIES II.

TYPHUS.

Typhus Fever.

Gen. IV. Spec. II. Specific term derived from Hippocrates, and peculiarly expressive of the disease.

PULSE SMALL, WEAK, AND UNEQUAL; USUALLY FREQUENT; HEAT NEARLY NATURAL; GREAT SENSORIAL DEBILITY, AND DISTURBANCE OF THE MENTAL POWERS.

The term is derived from Hippocrates, who uses it, however, in a sense not exactly parallel with its application in modern times. It is, nevertheless, admirably expressive of the general nature of the fever to which it was applied at first, and which it designates at present; which burns, not with open violence as the cauma, but with a sort of concealed and smothered flame;—for the Greek term τύφω signifies "to smoulder," or "to burn and smoke without vent."

May originate from the ordinary causes of fever.

Any of the ordinary causes of fever may be a cause of typhus, for the typhoid form is often dependant upon the character of the constitution into which it is received, as evincing a great deficiency of sensorial power: and hence cold, mental agitation, excess of muscular labour, and even intemperance, which in a high entonic habit might generate synocha or inflammatory fever, will often in a debilitated constitution, and especially when the debility depends primarily upon the state of the nervous system, and the nervous fluid is recruited with difficulty, give a typhous complexion to the disease from the first.

But arises generally from human effluvium, under the influence of auxiliary powers.

But though all the causes of fever may in this way give rise to typhus, its common cause, as we had occasion to notice when treating of the remote causes of fever *, is febrile miasm, issuing from the decomposition of human effluvium, under the influence of the ordinary auxiliaries of a close and stagnant atmosphere; still farther corrupted by a load of foreign exhalations from dirt or filth of any kind, and of that degree of warmth and moisture which must always exist where society exists, and especially where it exists in too crowded a state. Under these general circumstances a very low degree of warmth and moisture is sufficient, though there must be some proportion of both. And provided there be an adequacy of warmth, the lower the temperature the more certainly an individual becomes affected; not from a more abundant generation of febrile miasm, or from its being more volatile—for, on the contrary, it is here perhaps less abundant and even less volatile—but

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* Vol. II. Cl. I. Ord. I. p. 71.

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from the more depressed state of the living power, and the less resistance it is capable of offering to any morbid influence whatever.

Miasm thus generated has a specific power of lowering the vital energy.

I have just remarked, that under a depressed state of the living power, whatever be its cause, whether a want of cheerful warmth, cheerful passions, cheerful food, or cheerful and regular habits, typhus is often more likely to take place than any other species of fever. But when febrile miasm, produced by a decomposition of effluvium from the living body, exists in co-operation with these, it is almost impossible for an individual to escape; as the miasm thus generated has a specific power—a power beyond all other febrile causes whatever—of lowering still farther the vital energy as soon as it is received into the system, and thus of confirming the previous tendency to this peculiar type.

In what way typhus becomes contagious.

All this indeed has been observed already, though it is necessary to revert to it on the present occasion: it has also been farther observed, that when a typhus has in this or any other manner once arisen, the effluvium from the living body during its action is loaded with miasm of the same kind, completely elaborated as it passes off, and standing in no need of the decomposition of the effluvium for its formation. In many cases, indeed, all the secretions are alike contaminated; and, hence, febrile miasm is often absorbed, in dissection, by an accidental wound on the hand, and excites its specific influence on the body of the anatomist.

The contagion more limited in its range than marsh-miasm.

Hence, typhus becomes infectious; but as the miasm it generates, though more suppressive or exhaustive of sensorial energy, is less volatile than that of marsh-lands or dead organized matter, its infectious power is confined to a much more limited atmosphere than that of fevers originating from this latter source. And, on this account, fevers originating in jails, or other confined and crowded scenes, are less extensively communicable than the yellow fever, or that of hot climates and exhaling swamps.

It may be also necessary to recal the reader's recollection to another remark that has also formerly been made, that in a pure atmosphere the miasmic materials, from whatever source derived, become dissolved or decomposed; but slowly and with great difficulty, perhaps not at all, in a vitiated atmosphere already saturated with foreign corpuscles*. In a state thus crowded, moreover, they less readily disperse or ascend beyond their proper periphery of action; and where they are less volatile, as when issuing from human effluvium, they perhaps adhere by a peculiar tenacity to bodies more ponderous than themselves, and thus loiter for a still longer period within the stratum of human intercourse. And hence the fouler as well as the more stagnant the atmosphere, the more general, and, from the former cause, the more malignant the disease: for as nothing is so contributory to the preservation of sound health as pure air, so nothing tends so much as foul air to prolong or aggravate diseases of every kind. And hence, again, we have an obvious and sufficient reason why typhus should become more severe in proportion as it spreads and impregnates a given space with its specific miasm and accompanying colluvies.

Becomes dissolved in a pure atmosphere, but often not at all in a vitiated.

Why more malignant in vitiated air.

To what extent febrile miasm, issuing from the source before us, may spread in a free influx of pure air without becoming dissolved, or, in other words, so as to retain its contagious power, has never been very accurately ascertained. We know, however, that its range is very circumscribed, and reaches to but a very small distance from the patient, or the nidus of foul clothes or utensils in which it may be lodged; and never infects a person in an adjoining street, or house, or room in the same house; nor even, as Dr. Haygarth has observed, in the patient's own chamber, if large, airy, and kept clean.

Its contagious range not fully ascertained, though known to be very circumscribed.

It is also of great importance to know that typhous miasm, like the specific miasms of exanthems, does not render clean clothes of any kind contagious; or, in other words, does not adhere to or harbour in them. When, however, they are not clean, they may unques-

Does not render clean clothes contagious, but unquestionably unclean.

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* Vol. II. Cl. I. Ord. I. Sect. 9. p. 76.

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tionably be rendered contagious; and, hence, it is probable that the animal filth with which they are impregnated, while it is a source of additional matter, becomes a fomes of that already formed, and separated from the patient's body.

All individuals do not equally receive the contagion.

A susceptibility, however, to diseases of every kind varies very considerably in different individuals; and hence we find that many persons upon an equal exposure to typhous contagion with others, receive it far less readily, and in some cases seem to be almost favored with a natural immunity. As we have already remarked that a particular state of body gives a peculiar tendency both to generate and receive typhus, we can easily conceive that where the body is in an opposite state it must be much less susceptible of its influence; and we are thus put in possession of a general cause of escape. But there seems to be something beyond this, dependant indeed, not upon the incidents of more vigorous health or higher animal spirits, but upon the nature of the idiosyncrasy itself.

What proportion of individuals are naturally exempt from its influence.

Dr. Haygarth has endeavoured to determine, from very ingenious and plausible data, the average proportion of those who in this manner remain exempt from contagion, while spreading on evêry side around them. And he limits the immunity to one in twenty-three: for he tells us, that when one hundred and eighty-eight men, women, and children, were exposed fully to the typhous contagion for days and nights together, in small, close, and dirty rooms, all of them, except eight, were infected with this fever *. And he has farther endeavoured to show, that the miasmic poison, when received into the body, continues in a latent state for seven days, from the time of exposure to the contagion, before the fever commences, and may continue in the same state for seventy-two days, beyond which we have no instance of its producing any effect. And this deduction is in pretty close

Miasm continues latent in the body seven days, and sometimes much longer.

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* Letter to Dr. Percival, p. 31.

unison with the experience of Dr. Bancroft[*], who in ninety-nine cases of orderlies and nurses that attended the English army on its arrival at Plymouth from Corunna in 1809, observed that they were rarely attacked with fever earlier than the thirteenth and in no instance later than the sixty-eighth day.

Man may be brought by habit to bear exposure harmlessly.

Man, however, is so much the creature of habit, that his constitution is in a thousand instances brought by degrees to endure poisons of the most fatal power. This we see daily in the use of opium and ardent spirits; and we shall in due time have to notice something of the same kind, even in plague. This adaptation of the constitution, however, to the circumstances by which it is surrounded, is in nothing more conspicuous than in the fever before us. Not, indeed, in all persons—for all do not possess the same pliability of constitution—but in those who are endowed with it. And, hence, one reason why nurses and perhaps hospital-surgeons escape so often without injury; and especially why prisoners brought into a court for trial remain themselves occasionally in perfect health, while their clothes are so impregnated with the contagious miasm as to infect a whole court, and communicate the disease to the judge or others who are at the greatest distance from them.

But not all persons equally.

Some more slightly affected than others;

There are other persons again, as Sir George Pringle has well observed, whose constitutions forming a middle line between those who readily receive, and who powerfully resist the contagious aura, are affected only in a modified degree. They bend to the assault, but are not cut down by it. They become feeble and irritable; the sleep is disturbed; the tongue white in the morning; the appetite impaired; the smallest exertion fatigues them, and accelerates the pulse; and in this state they remain for weeks together, and at length recover without any formal attack of fever.

in yellow fever as well as in typhus.

We have seen that the same influence of habit exists under yellow fever; during which the natives of those

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[*] Essay on Yellow and Typhus Fevers, p. 515.

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climates, where its remote causes are in almost perpetual operation, suffer far less when it attacks them, and are far less susceptible of its attack.

Typhus sometimes produced from swamps,

But though febrile miasm issuing from a decomposition of human effluvium has a peculiar tendency to generate typhus, we have seen that the same miasm issuing from a marsh effluvium or a decomposition of dead organized matter, under a peculiar state of modification, has produced remittents with a typhous character, and sometimes specific typhus itself*. And, as in this case, the miasm is apt to spread more widely, typhus has by many writers been said to be occasionally epidemic.

and then occasionally epidemic.

Occurs chiefly in low temperatures.

When, however, the disease issues from this source, it is far more generally in temperatures too low than too high and heated; since, as already observed, cold, and especially cold and moisture, have a peculiar tendency to depress the living power: and hence this disease is said to be almost stationary at Carlscrone, or at least to have lingered there for four or five years on some occasions †.

Typhus, therefore, originating from different causes, and all these causes modified in their action by collateral circumstances, may readily be supposed to be accompanied with very different symptoms, and to appear under very different degrees of severity. The chief varieties, however, are the two following:—

α Mitior.	Nervous fever.
ϐ Gravior.	Putrid fever.

α E. Typhus mitior. Nervous fever.

The first variety, or MILD TYPHUS, was called by Dr. Huxham *febris lenta nervosa*, and has hence been commonly distinguished by the name of low or slow NERVOUS FEVER, from the great languor and dejection of mental or sensorial power with which it is always accompanied, and on this account it has sometimes been denominated the *hysterical fever* ‡. It is particularly characterized by slight

Character.

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* Epanetus malignus asthenicus, Vol. ii. p. 163.

† Foxe Neuen Schwed. Abhandl. Band. VIII.

‡ Manningham: on "The Symptoms, Nature, and Cure of the Febricula, commonly called the Nervous or Hysterical Fever." Lond. 1776.

shiverings; heavy vertiginous head-ache; oppression at the præcordia; nausea; sighing; despondency; coma, or quiet delirium; whey-like urine.

Sporadic typhus generally under this form.

When the disease appears sporadically, it is usually under this form. There is nothing alarming to the patient's friends on its accession. The first symptoms are slight, the tongue exhibits little change, and the pulse is only a little quickened, and somewhat smaller than usual: at the same time, however, there is great anxiety and depression of mind; so that the symptoms do not much differ from a mild and comparatively insignificant fever of any kind operating upon a nervous temperament. But as the disease advances, all the symptoms of sensorial debility become severer; the skin, which has hitherto been mostly dry, will about the third day be covered with profuse, clammy, debilitating sweats, while the heat is still inconsiderable, and the countenance pale and sunk. The sweat is often offensive to the smell, frequently acid, and sometimes, according to Stoll, as sour as the sharpest vinegar *. About the tenth day the weakness greatly increases; all the limbs tremble; and the tremors soon become convulsive, with a despondency and alienation of mind, at first observable only in the night, but soon continuing with little intermission: the delirium is of the mild or quiet sort, and rarely amounts to phrenzy.

Progress of the disease.

Rarely marked by a crisis.

The disease often runs on to the twenty-first day, and occasionally to a much longer period. It is seldom marked by that sudden change which can be called a crisis; but gradually becomes more aggravated in its symptoms till it reaches a fatal termination; or slowly advances to convalescence, by evincing a disposition to natural sleep; more steadiness and firmness of pulse; a more favourable countenance; a tongue more florid at the edges; a firmer and more collected mind; and a returning desire for food, often indeed capricious, but without nausea or sickness.

Termination.

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* Rat. Med. III. p. 79.

Gen. IV. Spec. II. α E. Typhus mitior. Nervous fever.

Singular case of typhus.

In an anomalous and very singular case, related by Dr. Satterley*, the desire for food, which at first was greatly loathed in whatever form offered, reappeared about the fifth day with an enormous craving which it was impossible to satisfy. Animal food was preferred, but food of any kind was swallowed voraciously; and when food was not allowed, various indigestible substances were devoured in its stead. This desire returned with every returning ingravescence of the fever, which adhered to no regular period; and it continued as long as the ingravescence lasted, which was usually ten or twelve hours. The disease extended with numerous variations to upwards of thirty days, when the fever unequivocally subsided, and the patient gradually recovered.

Of the treatment we shall speak, after considering it in its severer forms.

β E. Typhus gravior. Putrid fever.

How differs from mild typhus or nervous fever.

The heavier, severer, or PUTRID TYPHUS chiefly differs from the mild in the violence and rapidity of its march, and the marked and undisguised character it assumes from the first. While the mild therefore commences insidiously with only slight shiverings, the heat scarcely above the natural temperature, and the pulse small, and only a little quickened, the heavy typhus opens with sensible and alternating rigor and heat, succeeded by little or no perspiration; the pulse is tense and hard, usually quick but fluttering; pain over the forehead and crown; urine alternating from limpid to turbid; delirium succeeded by stupor, and early signs of putrescency.

Called also jail, camp, and hospital fever.

From the last feature, the disease has derived its common name of PUTRID FEVER; as it possesses the additional names of JAIL, CAMP, and HOSPITAL FEVER, from its appearing so frequently in these situations.

Diagnostics.

During the first twenty-four hours the alternate heat and cold are considerable; the fever increases every evening, and in the second week the delirium usually commences; the stupor following five, six, or seven days

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* Med. Trans. Vol. v. Art. XXII.

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afterwards. From the first there is a violent head-ache and vomiting; the pain over the forehead shoots through the eyes to the bottom of the orbits; the eyes themselves are full, heavy, and slightly inflamed; the countenance is bloated; the temporal arteries throb, while the pulse at the wrist is small; the ears tingle; and the mind, antecedently to the delirium, is fearfully dejected.

Balance of the sanguiferous system disturbed.

The balance of the sanguiferous system is generally much disturbed, from a greater degree of sensorial debility in some organs than in others; and hence, the blood is determined irregularly, and accumulation, affusion, and inflammation are frequent effects. These show themselves chiefly in the head, the lungs, and the liver; but there is no organ in which they may not occur; and they never can occur without danger. If no critical change take place about the fourteenth day, leading distinctly to an amended state, the symptoms of putridity increase both in number and degree; there is great faintness; difficulty of respiration, intermixed with deep sobs; the breath is hot and offensive; acute pains in the loins and limbs; a heat upon the skin biting and pungent, rather than burning, leaving a smarting sensation on the fingers for several minutes after touching it, and which from this very peculiar effect has been called *calor mordicans*. The tongue, whitish at first, is now dry, dark, livid, black, or of a pomegranate colour. The lips are furred with a black tenacious sordes; the urine becomes brown or blackish with a most offensive smell; a blackish or bilious matter is occasionally thrown up from the stomach; the skin is more or less discoloured with flea-bite-shaped or broad purple spots; the stools are blackish and highly fetid. Cold, clammy, colliquative sweats and convulsions, sometimes accompanied with hæmorrhage from one or more organs, soon afterwards usher in death; the period of which is extremely uncertain, and ranges from the fifth to the eighteenth day, according to the malignity of the attack, the strength of the patient, or other contingent circumstances.

Acme about the fourteenth day.

From the purple or flea-bite spots, which last are

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often called petechiæ, or as it should rather be written petecchiæ, this variety has been very generally treated of on the continent under the name of febris *petechialis*, or *petechizans*; sometimes, as by Follini* and Matarasius†, under that of febris *peticularis*; sometimes, as by Jacobi and Morelli‡, it has been called febris *purpurata*; while by à Castro it is termed febris *punctularis*§; and by De Cermona, febris *cum punctulis*‖. By the Spaniards, it was hence vulgarly denominated tavardillo or tabardillo, from tavardo, a spotted cloak formerly in common use. These punctæ or vibices, however, are nothing more than symptoms of putrescency; and are common to other fevers, and even to diseases without fever, as land or sea scurvy (porphyra hæmorrhagica and p. nautica) as well; and hence have no ground whatever for establishing a distinct species, and still less a distinct genus.

This variety rarely produced sporadically.

I have said, that the milder variety or nervous fever usually shows itself sporadically, originating from some other cause than febrile miasm in an irritable and atonic habit. Malignant typhus sometimes commences in the same way, but usually by a decomposition of human effluvium accumulated in a camp, a ship, or even a large single family, when the space is too small for the number, the habits uncleanly, and the atmosphere stagnant and unventilated. The cause is one, and the fever the same, varied alone by accidental circumstances, or symptoms that depend altogether upon its less or greater degree of violence.

Found chiefly among the poor and destitute, and why.

In this metropolis, therefore, malignant typhus is almost exclusively to be met with amongst the poor; and the more wretched and destitute they are, the more readily they become its prey. I cannot better illustrate

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* Orationes de Natura febris peticularis. Colon. 1722. 8vo.

† De Febribus peticularibus malignis, contagiosis, &c. Mezarini, 1722. 8vo.

‡ De Febra purpurata epidemica. Lion. 1641. 8vo.

§ Febris maligna punctularis aphorismis delineata. Tub. 1693.

‖ Tract. de Peste et Febribus cum punctulis. Sevilla 1581. 8vo.

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its rise and progress, than by the following simple picture as furnished by Dr. J. Hunter: it is drawn from life, and will be easily recognised by every practitioner.

Picture of the disease in a single family.

"A poor family, consisting of the husband, the wife, and one or more children, were lodged in a small apartment, not exceeding twelve or fourteen feet in length, and as much in breadth. The support of them depended on the industry and daily labour of the husband, who with difficulty could earn enough to purchase food necessary for their existence; without being able to provide sufficient clothing or fuel against the inclemencies of the season. In order, therefore, to defend themselves against the cold of the winter, their small apartment was closely shut up, and the air excluded by every possible means. They did not remain long in this situation before the air became so vitiated as to affect their health and produce a fever in some one of the miserable family. The fever was not violent at first, but generally crept on gradually; and the sickness of one of the family became an additional reason for still more effectually excluding the fresh air; and was also a means of keeping a greater proportion of the family in the apartment, during the day-time; for the sick person was necessarily confined, and another as a nurse. Soon after the first, a second was seized with the fever; and in a few days more the whole family perhaps were attacked, one after another, with the same distemper. I have oftener than once seen four of a family ill at one time, and sometimes all lying on the same bed. The fever appeared sooner or later as the winter was more or less inclement; as the family was greater or smaller; as they were worse or better provided with clothes for their persons and beds, and with fuel; and as their apartment was more or less confined*."

Causes auxiliary to human effluvium.

There are a few auxiliary causes not noticed in the above

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* Observations on the disease commonly called the Jail or Hospital Fever. By John Hunter, M.D. Physician to the Army. See Med. Trans. Vol. III. Art. XXII.

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faithful delineation, which seldom fail of being present, and have always a very considerable degree of influence; these are, the anxiety and dejection of mind so sure to accompany such a scene of misery, and the increasing carelessness and consequently uncleanliness of person, which are equally sure to follow. And we may hence see why typhus should so frequently make its appearance in the poorest and most miserable streets of a metropolis, and be generally confined to such streets; why it should rage most extensively and most violently in times of the severest public pressure and distress; and hence again why it should be more common in Ireland than in England, in Dublin than in London.

Advantages of fever establishments.

We also see the inestimable advantage of such establishments as Fever Houses or Infirmaries in all populous towns, when built upon the sound principles, and governed by the judicious regulations, and, I may add, superintended by the active humanity and established talents which are so conspicuous in the Fever Hospital of this metropolis.

Jail typhus, &c. only a complex enlargement of the above picture.

To describe the typhus of jails, ships, camps, and other large bodies of men, we have only to multiply the single family we have just beheld into fifties or hundreds; ever remembering, that the virulence of the febrile poison increases in power, not in a numerical, but in a sort of geometrical proportion to the numbers by which it is fed. So that if five patients produce a given ratio of pestilence, ten will produce, not as much again, but nearly a hundred times as much. And hence we may readily account for the fearful and deadly ravage which this cruel scourge is well known to inflict upon a people when closely pressed together, and incapable of flying from its pestilential aura, as in crowded encampments, or a besieged and pent-up town; and especially where, as is often the case, there is considerable carnage from the casualties of war, and a deadly calm prevails for weeks together in the atmosphere. This last concomitant, indeed, gives completion to the whole; and is a heavier calamity than it is generally conceived to be; for

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the most fatal pestilences of which we have any account seem to have been preceded by a stagnant atmosphere. Thus Maitland, in his History of London, observes, that for several weeks before the plague broke out in this metropolis in 1665, there was an uninterrupted calm, without sufficient motion in the air to turn a vane. The assertion is confirmed by Baynard, a contemporary physician; and a like harbinger, as is observed by Diemerbroeck, preceded the plague at Nimeguen.

Prognosis and means of cure.

In both varieties, the prognosis must be collected from the vehemence of the symptoms, and the character of the idiosyncrasy; and the cure must depend upon the means we may possess of supporting the vital power, and restoring its lost energy.

Specific properties of typhous miasm.

The peculiar properties by which typhous miasm is distinguished from miasms of every other kind, are the rapid and direct debility with which it affects the nervous system, and seems to prevent a due secretion of nervous fluid, or its secretion in a state of healthful elaboration; the activity of its leaven, by which it assimilates all the fluids of the body to its own nature, and the urgent putrefactive tendency it gives to every part.

Septic power not necessarily dependant upon its debilitating power.

The last of these properties may in some degree be dependant upon the first; but it does not appear to be entirely so; since we often find the sensorial power reduced to a much lower ebb, as in asphyxy from hanging or drowning, suffocating exhalations or lightning, catalepsy, and deliquium from loss of blood, while there is an almost infinitely less degree of tendency to putrefaction. And, in like manner, although the miasms of many of the exanthems, as rosalia or scarlet-fever, smallpox and plague, are also capable of tainting the secretions of the body, none of them appear to do it so completely and universally as that of typhus when in its most malignant state; in which the breath, all the egesta, and all the fluids are loaded with contagion. It has been propagated by the excrement*, by the odour

Proofs that all the secretions of the body are contaminated.

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* Riedlin, Lin. Med. 1695. p. 402.

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of flowers employed to decorate the dead body*; by washing the bandages employed in typhous gangrene †, and, in innumerable instances, by the communication of a minute drop of any of the fluids of the dead body to a punctured finger during dissection.

These peculiar properties should be always in the mind and guide the practice.

In forming our prognosis, and attempting a cure, these properties should always be prominent in the mind; for they will best enable us to calculate the nature and result of symptoms that are present, and will guide us to the most rational and satisfactory mode of practice.

Congestion and effusion frequent from weakness and irregular action.

From the debility that prevails throughout the living fibre, even from the first, the pulse is feeble and tremulous, the extreme vessels torpid or nearly so, and the circulatory balance greatly disturbed. Hence, we have reason to expect that effusion and congestion, or an irregular determination of the blood, will in many cases be an early attendant: and, if there be energy enough remaining in the organs thus affected to produce any degree of reaction, that local reaction will follow, and perhaps lead on to inflammation terminating in suppuration or gangrene; of which Sir John Pringle has given numerous examples. And hence there is some ground for contemplating typhus, as Dr. Armstrong has done, under the three varieties of a simple, congestive, and inflammatory affection. But it should never be forgotten, that the disease in every stage and variety is one and the same; a disease of sensorial debility leading on to putrescency; and that our only hope of cure depends on economizing the nervous power that remains, supporting it as far as we are able without farther loss, and opposing the natural tendency of the disease by such tonics as the system will best bear.

In what consists the best hope of cure.

On this account whatever tends to weaken the animal frame generally, or any one of its functions particularly, must, as a common rule, be carefully abstained from:

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* Eph. Nat. Cur. Dec. Ann. VII. VIII. Obs. 193.

† Hennen's Principles of Military Surgery, p. 218.

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and hence severe evacuations, by bleeding or purging, are among the foremost objects of prohibition.

As a common rule severe bleeding and purging to be abstained from.

The bowels, indeed, ought by all means to be moved by a gentle aperient, in order that no acrimonious material may be lodged there; but beyond this we ought not to proceed, as we shall add to the debility without obtaining any correspondent advantage. The grateful acids of tamarinds, cream of tartar, or prunes, are preferable, if found sufficiently powerful; but, if not, they should be combined with rhubarb or senna. And as the stomach is less irritable than in yellow fever, an emetic may be given whenever indicated; but unless there be a troublesome nausea, even this had better be avoided. Ipecacuan will answer better than antimonial preparations, and the evacuation should be followed with a cordial draught.

Gentle aperients;

but not emetics, unless nausea be present.

But congestion, as already observed, may take place, and this too in the larger and more important organs of the animal frame, as the head, the lungs, or the liver. If in the first, there will be a sense of oppression in the brain, most commonly combined with stupor, or low muttering delirium; if in the second, a laborious weight on the chest and a difficulty of respiration; if in the third, the bowels will usually be found costive, the motions pale and argillaceous, and sometimes the skin and the urine chlorotic, or of a greenish-sallow from a regurgitation of bile, morbidly secreted, into the sanguineous system. Hence the fever will be aggravated from local irritation, and the affected organ will be in danger of inflammation if not of gangrene.

Marks of congestion or oppression.

Is the general rule in this case to be departed from? is blood to be taken from the system? and, if so, is it to be drawn locally or generally? and to what amount?

Is the general rule here to be departed from?

We have here only left to us a choice of difficulties. Nothing, as Dr. Fordyce has justly observed, is more dangerous in any fever than its affecting one part more than another; but in typhus the danger is extreme; and it must be combated boldly and rapidly by whatever plan has a chance of taking it off, and however

Only a choice of difficulties left:

but the danger must be combated boldly and rapidly,

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hazardous in itself, provided the hazard be less than that of the disease. And hence, in this case, bleeding must be had recourse to, for there is nothing we can so well depend upon. If we have reason to believe that the overloaded organ is without inflammation, the blood should be drawn locally and till relief is afforded; if there be good ground for suspecting that inflammation has commenced, and especially if the organ affected be large and important, it will be better to employ the lancet; and it cannot be employed too soon, nor ought it to be relinquished till it has attained its object. There is a risk in the practice, but there is death without it. Fainting may perhaps take place in the midst of the operation; but this is rather to be wished for than guarded against; for the exhaustion of sensorial power produced by deliquium bears no comparison to that produced by the influence of the typhous miasm, acting as a leaven throughout the system.

and by free bleeding.

Risk in the practice, but death without it.

Stimulant purgatives.

In this state of the disease, also, instead of merely keeping the bowels open, we should employ purgatives that may stimulate and maintain a stimulating effect upon the whole of the intestinal canal, so far as that three or even four evacuations may be obtained daily; and calomel will be commonly the best medicine for this purpose. For such an irritation will frequently prove revellent; and the drain of sensorial power hereby produced will be trifling in comparison to that occasioned by a continuance of the local excitement it is intended to remove.

Examination of the practice of venesection as a general instead of a special rule.

Such are the exceptions, and the only ones, we should allow to the general rule of opposing the disease, by economizing, supporting, and restoring the depressed tone of the nervous system. But there are pathologists, and of considerable authority, who recommend bleeding, and even full bleeding, in almost every instance of the disease, as the first step to be pursued: thus inverting the mode of practice here laid down, and taking the exceptions for the rule, and the rule for the exceptions.

The theory of this recommendation is but of little importance provided it be justified by its result. At the same time I cannot avoid observing, that its chief advocates have not been able to bring themselves to any thing like a common theory, or to support their recommendation upon common principles: than which nothing can be more unfavourable to the reception of a doctrine, or more hostile to its scientific pretensions. Typhus is, by Dr. Clutterbuck, regarded like every other kind of fever, as the result of an inflammation of the brain; and blood-letting is here grounded upon the principle of attacking the cerebral inflammation, and *debilitating* the action of the living fibre. The visceral and other local congestions and inflammations that so often occur, are, by Dr. Armstrong *, regarded as precursive and generative of the sensorial debility, while the disease itself is no more derived from the brain than from any other organ. And blood-letting, under this view of the subject, is recommended as the means of *preventing* debility in the living fibre, instead of *adding* to it. "We may perhaps find," says he, "sufficient data for concluding that the nervous appearances, even from the very first attack, are only secondary of vascular disorder." Now, these hypotheses, discrepant as they are from each other, may be both founded upon a mistake of the effect for the cause †. And such, indeed, seems to be the general opinion of pathologists upon the subject; and hence, even admiting the benefit of blood-letting as an invariable or common rule, we have yet to search for *some other reason* by which such benefit is to be explained. Dr. Jackson thought he had found this reason in the *stimulant* effect of venesection upon the system at large, which, by exciting new motions, suspends or changes morbid motions, and affords room for the vires medicatrices naturæ to act with a more salutary power:

The advocates for such practice not agreed upon common principles.

Employed to debilitate the living fibre.

Employed to prevent debility in the living fibre.

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* Practical Illustrations of Typhus, &c. 8vo.

† Appendix to his Remarks on the Constitution of the Medical Department, &c.

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while, by its mechanical effect in diminishing the circulating fluid, it adapts the moles movenda to the vis movens. Venesection, therefore, upon Dr. Jackson's hypothesis, acts not by debilitating, or even preventing debility, but directly by *invigorating* the living fibre: and in this view he employed it in fevers of every kind, entonic and atonic; inflammatory and putrid; and, in his own belief, with nearly equal success.

Employed directly to invigorate the living fibre.

But this is to regard the blood as an incumbrance, a dead and foreign body in its own vessels, instead of as a living and nutrient principle; the removal of which affords ease and freedom to every part of the animal frame, and clears it for the contest in which it is about to engage. A violent and general commotion produced in the system from severe bleeding, or any other cause, cannot fail of exciting a very deep impression upon every part; and has often suspended or changed the actual train of motions, and introduced a new train in its stead; and, in various instances, the change has unquestionably been beneficial and even salutary. This is particularly the case in sudden and overwhelming excitements of mental emotion, which have, sometimes, abruptly cut short the career of fevers as well as of various other complaints; of which the Baron Van Swieten gives a striking instance in a man, who, while labouring under a continued fever, with delirium, was so alarmed at the terrific aspect of a person that burst suddenly into the sick room, vociferating that the house was on fire, which in this case was the fact, that he rose without help from his bed, ran out of the house with all speed, and was well from that moment. To this principle of a salutary change of action exited by a violent and general commotion throughout the system, it is probable that we are to ascribe the occasional benefit that has followed upon draining the vessels of blood in diabetes and even in lyssa, or canine madness. And it is possible, therefore, that copious venesection may, also, in many instances, have cut short the attack of typhus, and thus proved a rapid and effectual remedy. But if this be the ground

In what manner severe bleeding is sometimes serviceable in other cases than inflammation.

Singular case from Van Swieten.

Exemplified in diabetes and lyssa.

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upon which it acts, few practitioners would be disposed to recommend it; while, if it be not, we have no other ground that will furnish us with a satisfactory explanation.

Theory of little importance if the practice be beneficial.

Aggregate of practice examined.

Practice of many centuries standing, alternately revived and abandoned.

But I have already observed that the theory is of little importance provided the practice has justified itself by the event. How then stands the sum of general opinion upon this subject? The practice is, by no means, new, though ordinarily supposed to be of recent origin: for it has alternately lived and died away, been revived and again sunk into disrepute, for considerably upwards of three centuries; and its advocates have, in various times, been as numerous and as confident, and have maintained as warm a contest, as we are called upon to witness at present: of which any one may convince himself who will turn to the books referred to in proof of this assertion at the foot of the page*; of which the first three were published in the sixteenth century, the ensuing two in the seventeenth, and the last two in the middle of the eighteenth. The work of Professor De Büchner, of Halle, was strenuously opposed in his recommendation of venesection, at Paris by Chambon de Montaux, and at Rome by Sinibaldi. Yet, as in the present day, the supporters of the depleting system had also not a few controversies amongst themselves, though they were not precisely of the same description as those in our own time; the chief point of dispute being the part of the body from which blood could be drawn with most

Former controversies between the advocates for the practice.

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* Bernardi Caxanes, De Ratione mittendi sanguinem in Febribus putridis, Barcelon. 1592.

Sylvaticus, De secanda in putridis Febribus, venâ quam Salvatellam dicunt, 1583.

Thurini, An in omni Febre putridâ competat phlebotomia, Rem. 1545.

Nigrisoli, Progymnasma de venâ in Febre malignâ secanda, an superiori an inferiori. Guastalla, 1665.

Suavalla, Ergo malignæ febri venæsectio, Paris, 1694.

De Büchner, Diss. de Venesectione in febris acutis malignis, Halle, 1757.

Gilchrist, Edin. Med. Essays, Vol. IV. Art. XXIII.

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advantage; some practitioners performing on the arm, and others on the leg or foot; a point, however, that gradually lost its importance, as the doctrine of the circulation of the blood became more generally adopted and understood.

The sum of medical opinion against it as a general rule;

Judging, therefore, of the expediency of blood-letting from the history of the practice before us, when enforced as a general rule in typhus, the sum of medical opinion upon a trial of three centuries is against it. The practice has occasionally started into popularity, but it has never been able to establish itself. In the peculiar states of the disease I have already adverted to, it may be useful, and ought not indeed to be neglected: but every case must speak for itself, and the rule must not be confounded with the exceptions. And such, in effect, was the opinion of Dr. Gilchrist, as expressed in his treatise on Nervous Fevers, published seventy years ago, in which he tells us, that at that period "the ordinary evacuations in the beginning were bleeding and vomiting," and that it was sometimes "necessary to bleed once, and again, by which the symptoms were considerably lessened*." But he had too much good sense to enforce this practice indiscriminately, and felt the necessity of yielding to contingencies: for in many instances, he adds, "though we bleed, the symptoms are not always much abated by it; and if we bleed freely, being deceived by an appearance of plethora, we do harm: indeed, in general," continues he, "I imagine bleeding seldom did much good; and if great caution were not used, I suspect it was hurtful: but as I was not often called in the beginning, I am unwilling to pronounce positively about it." The passage is well worthy of attention, as containing the free opinion of an able, candid, and distinguished writer upon an extensive examination of the subject in his own day: and an opinion, too, which is very considerably in accord-

though highly needful in particular cases.

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* Edin. Med. Essays, Vol. iv. p. 281.

ance with the opinion and practice of Sir John Pringle and Dr. Huxham.

Its expediency often dependant on the state of the atmosphere.

It should never be forgotten, however, that the expediency of bleeding must depend, not only on the diathesis of the individual, but very considerably on the state of the atmosphere. This remark I wish to enforce very strongly on the attention of practitioners, as it is derived from experience, and is of more importance than it may at first perhaps appear to be. As inflammatory fever has, sometimes, a tendency from peculiarity of constitution or accidental circumstances to run rapidly into typhus; typhus, in like manner, occasionally meets with incidents that suddenly reverse its character and incline it to an inflammatory type. A very stimulant plan of treatment has sometimes done this; but far more frequently a sudden change in the atmosphere, from hot, hazy, and relaxing weather, with scarcely a breath of air stirring abroad, to a dry, cool, and refreshing east or north-east breeze: and I have often found a like tonic effect produced upon a patient labouring under typhus in a low, damp, filthy, and suffocating lodging, upon his being removed into a large, cool, pure, and well-ventilated chamber, such as is now generally found in our fever institutions. In this case, bleeding, which I had not dared to risk, notwithstanding some symptoms of oppression, before the removal, has been practicable without any risk afterwards, and has laid the foundation of a speedy and effectual cure; and I am inclined to think that some part of the clash of opinion, which prevails upon this subject in the present day, proceeds from a want of due attention to the different states in which different or even the same patients are placed by this difference in the purity and temperature of the surrounding atmosphere; and that many hospital-physicians, who are the warmest advocates for sanguineous depletion in their own fresh, cool, airy wards, would hesitate upon its expediency if they were to attend their patients throughout in their own close, heated, and miserable habitations.

Clash of opinion capable of being considerably reconciled.

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Farther illustration.

It is only a few months ago that I was consulted by a very respectable practitioner in Hertfordshire, upon a plan of treating typhus, which was then raging with great violence among the poor of the town in which he resided. He had been a surgeon in the naval service of the East India Company: and having witnessed the benefit of early and copious bleeding in the yellow fever, had very generally followed it up in the contagion before him, and, as he frankly confessed to me, with a decidedly unfortunate result. My advice was, before he thought of the lancet to take care of the ventilation; and then to subject it to the restrictions here laid down, and to let every case be its own interpreter. And a letter received from him a few weeks afterwards expresses his obligations for the advice, and the success that had resulted from it.

Hospital at Bilboa, in 1813.

Upon this subject there is a passage in Dr. Hennen's Military Surgery so strikingly in point that I cannot avoid quoting it. After the famous battle of Vittoria, in July 1813, the sick and wounded of the British and Portuguese army were chiefly removed to a temporary hospital established at Bilboa; where typhous miasm having soon been produced by its ordinary causes, of a foul and stagnant atmosphere, crowded wards, and depressed spirits, the sick were soon affected, and whatever was the nature of the individual constitution; the wounds of all of them ran rapidly into a typhous gangrene; "exhibiting," says Dr. Hennen, "one of the most subtile and destructive poisons that ever infested an hospital, attacking equally the most robust and the most debilitated, and, if unchecked by medical aid, proceeding invariably to a fatal termination*." The atmosphere was, at this time, sultry and relaxing; and greatly contributed to the general debility. "I need scarcely say," continues Dr. Hennen†, "that a remedy so strongly recommended as venesection had early oc-

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[*] Priciples of Military Surgery, p. 19.

[†] Id. p. 223.

cupied our attention: but previous to the month of October the obviously typhoid type of the disease made us extremely averse from employing it. At that period, however, a change in the weather from sultry to cold, and even frost (at night) took place, marked by a corresponding change in the thermometer, which, at its medium range, was 20° lower than in the preceding month.—But what more than all convinced us of the change of type, and pressed on our consideration the propriety of blood-letting, was, that the spontaneous hemorrhages which formerly sunk the patient's strength were now accompanied with obvious relief." And he proceeds to state that from this time the practice of venesection, on the appearance of inflammatory symptoms in a wound or newly-healed stump, became general, and was the only remedy had recourse to whether as a cure or a preventive.

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Of such importance is it for us to be guided by particular and general circumstances in the treatment, not merely of typhus, but of all diseases whatever: to let the rule have its exceptions, but not to mistake the exceptions for the rule. "The art of physic," says Sir George Baker, "rarely admits of any perpetual precepts; and the best medicine may do harm if not adapted to the patient as well as to the disease *."

Importance of being guided both by particular and general circumstances.

There is another remedy of very extensive use in the cure of typhus, far less disputable, and which is founded altogether upon the indication of equalizing, supporting, and restoring the sensorial power: and that is, the free application of cold water, and especially externally.

Cold water as a remedy,

This valuable medicament has been employed in some form or other almost immemorially. Hippocrates recommends it in malignant fevers generally in the form of epithems, or napkins wetted with cold water and applied repeatedly to the head or any other viscus as the cloths became warm †. Among the later Greeks, how-

employed almost immemorially;

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[*] Med. Trans. III. 417.

[†] Περι Νουσων, II. p. 484. 50.

Gen. IV. Spec. II. ε E. Typhus gravior. Putrid fever. Treatment. though not very gene- adopted in Greece or Rome.

Early as an external application in England.

ever, it does not appear to have been in very general use; and though it is highly prized by Celsus, in various debilities, and especially sensorial debility affecting the head, and combined with fever, in which, says he, "existat validissimè repentè aqua frigida infusa*," yet it does not seem to have constituted a fixed, or even a frequent practice in his day. In our own country it was successfully employed by Dr. Willis, in various fevers, and especially those accompanied with delirium; and was hence strongly recommended by Sir J. Floyer and Dr. Baynard: and was used on the continent, not merely in the form of epithems†, and affusions, but occasionally in that of immersion, or cold bathing in a river adjoining the patient‡.

Still earlier on the continent.

Used internally as well as externally.

Snow-water.

On the continent, indeed, it seems to have been employed at a much earlier period than in our own country, as we learn from Milot's Dissertation, "Ergo febris frigidis et humidis expugnenda," printed at Paris in 1594; and Hernault's, on the same subject, "Ergo propria febrium medela refrigeratio," printed in the same place in 1630. It was also used internally as well as externally, both in our own country as well as on the continent, especially in Spain and Naples, as is obvious from Dr. Hancock's Febrifugum magnum §, and Dr. Cyrillo's paper on the subject in the Philosophical Transactions. Even snow, or snow-water, under the name of aqua nivata, or aqua nive refrigerata, was also occasionally employed ‖; and, in the ardent fever, recommended by Paullini both externally and internally ¶. And to prove

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[*] Medicinæ, Lib. III. Sect. XX.

[†] Mursinna über Ruhr und Faulfieber. Loeffler, Beytrage, &c.

[‡] Eph. Nat Cur. Dec. III. Ann. III. Obs. 48, and Ann. V, VI. App. p. 128.

[§] Febrifugum magnum: or common water the best cure for fevers. Lond. 1752.

[‖] Nouvelles Annales de Medicine, IV.

[¶] Cent. I. Obs. 66.

See also Nehemias (Abrah), De tempore aquæ frigidæ in febribus ardentibus ad satietatem exhibendæ. 8vo. Venet. 1591.

Planchon, Journ. de Med. Tom. XXX. p. 127. Lamarque, id. Tom. LXVI. 460. LXVII. 68.

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how torpid to common impressions the body is under nervous fevers generally, and how little disposed to be injured by such applications, it is only necessary to advert to the case of a patient at Lucca, given by Dr. J. Benevuti, in another part of the Transactions just referred to. On the ninth and tenth day from the incursion of a malignant fever, he was thought to be in great danger. On the eleventh, he expressed a wish to go to sleep, and desired the attendants to withdraw. On their return, he was found to have left his bed; and three days afterwards was discovered in a hut in a vineyard, about two miles from the house, having but just recovered his senses, and as much wondering how he came there as those who had traced him out. It appeared, on farther inquiry, that he had descended from his chamber by the window, in his shirt alone, and in a great perspiration; had walked all the way in the snow with which the ground was then covered, and had swallowed a large quantity of it to quench his thirst. Yet neither the cold air nor cold beverage affected him otherwise than beneficially. He continued well from this time *.

Singular case from Benevuti.

Body torpid to the action of external influences.

The use of cold water, however, as well external as internal, appears on many occasions to have been employed with too little caution, and hence one reason of its falling into frequent disrepute. Even as early as 1581, Masini thought it right to guard the profession against its abuse, by a work expressly devoted to this subject †; and numerous others occurred in succession through the ensuing century.

Cold water formerly employed incautiously.

In our own day, Dr. Wright of Jamaica is, perhaps, the first physician who revived the practice; but it is chiefly to the judgment and experience, the writings and recommendation of Dr. Currie of Liverpool, that cold water as an external application is indebted for the high

Practice of the present day: by whom renewed.

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* Phil. Trans. VIII. 1768.

† De Gelidi Potûs abusu. 4to. Cesen.

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and deserved degree of popularity it again possesses, and especially in typhus.

In what forms employed.

Regulations in the use of it.

It is now equally used in the form of sponging, ablution, and affusion, the last of which is the κατάκλυσις of the Greek writers, though the term occasionally also imported immersion. All these are of essential use; yet the most sudden and decisive benefit has been observed to result from affusion; for which purpose the patient is to be supported on a stool in a low wide tub, and to have a small bucket of water, containing about two gallons, poured briskly on his head, and repeated four or five times in the course of the twenty-four hours, when the surface of the body is hot and without perspiration. In many cases this plan alone has proved successful, and the fever has been cut short in a day or two from its commencement. But the method is too violent and exhausting to be employed after the first three or four days of attack; beyond which it will generally be most useful to restrain ourselves to epithems about or all over the head, the hair being removed for this purpose, or sponging the body generally: and if the sensorial debility be extreme, we should prefer tepid to cold water, or mix with the cold water a little brandy or other spirit. When this method succeeds, the usual salutary effects are, a considerable diminution in the number of the pulse; diminution of heat and head-ache; natural sleep, and a breathing perspiration.

On what principle the practice is beneficial.

Whether the water operates as a tonic?

It does not appear to me that the principle has yet been fully explained by which the external application of cold water becomes thus unequivocally beneficial. This is generally referred to its tonic power in exciting a reaction as the result of its chill. But though affusion often produces not only a chill, but even horripilation, sponging the body with tepid or even with cold water produces no chill of any kind; and there are many cases of extreme debility in which, if a chill were to take place, it would be most mischievous, and certainly would not be succeeded by any heat or reaction whatever. Independently of which, the refreshment takes place too

Treatment.

Whether by decomposition?

Illustrated analogically.

speedily for such an effect, and is of a different and more tranquillizing kind than the excitement which follows upon the chill of cold bathing in a state of health. And I cannot, therefore, but think it probable that much of the good effects of the external application of cold water in typhus and other complaints depends upon a decomposition of the water; though whether by an absorption of caloric or of oxygene, alone or in conjunction with any other principle hereby set free, is by no means easy to determine. There is yet much to be learnt upon the cause of that beneficial excitement which the decomposition of water exhibits in various bodies, both organic and inorganic, with which it comes in contact. We see plants instantly revived, the fire in the blacksmith's forge instantly quickened, and not only tile-eels and other animalcules, but even snails, apparently dead, and that have been kept as dried preparations from five to fifteen years *, start instantly into new life upon the application of cold water. Yet no chemist or physiologist has hitherto satisfactorily explained by what means these effects are produced. And I throw out the hint, that so instructing a subject may be followed up by those who have time and ingenuity for experiments in relation to it.

How far internal remedies of use.

Upon internal medicines we can place but little dependance, except where they have pretensions to a tonic power, are moderately cardiac, or tend to equalize the sensorial or circulating fluid.

Tonics of the Boerhaavian school feeble:

and have yielded to cinchona:

now itself slighted by many;

The chief tonics in use among the Boerhaavians were the serpentaria and contrayerva, on account of their systematic objection to the bark. The tonic power of these, however, is but feeble; by their stimulant property, they sometimes prove diaphoretic: but even as cardiacs their place is better supplied by other medicines; and in proportion as the bark has established itself, they have gradually fallen into disrepute. Yet even this last seems to be following the same track in the opinion of some practitioners of the present day, who have withdrawn all con-

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* Spalanzani, Hist. Nat. Tom. II. ch. iii. Phil. Trans. 1774, p. 432.

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fidence in it, and undertake to affirm that it has uniformly done more mischief than good. But this is strangely to set aside the wisdom of former times, and to misconstrue the train of phænomena before them. Bark, like every other medicine, is necessarily injurious when injudiciously made use of; but there are few, if any, medicines of more importance, even in typhus, when there is a fit opportunity for employing it. Where the stomach is irritable, and will not retain it, or so feeble in its secernent power as not to digest it, and, particularly, where there is a tendency to local accumulations, it ought unquestionably to be avoided, till these symptoms are subdued by other means. But where there are no such objections it cannot be begun too soon, though it should not be pressed in such large doses as in the more rapid course of yellow fever. And where the bark cannot be made to sit easy on the stomach, its place may be well supplied with columba, either in powder or infusion.

Columba.

Combined with neutral salts,

If the skin be greatly heated and dry, either of these medicines may be combined with nitre or a solution of the acetate of ammonia, the first of which was a favourite compound with Baron Haller and his disciples *; and if the prostration of strength be considerable, we may employ camphor or wine in conjunction with tonics.

camphor and wine.

Camphor highly prized alone, or in combination.

Camphor has, indeed, been united with medicines of very different powers; as with large doses of nitre which Haenel seems to have found highly serviceable †; or nitre and calomel, which was at one time a favourite practice in Germany ‡; or, which is far better, with cinchona, a combination peculiarly recommended by Lasonne as increasing the energy of each, in which opinion he is joined by Dr. Cullen. Camphor, however, is in itself a highly valuable medicine on the present occa-

Its beneficial effects.

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* Haenel, Epist. ad Haller.

† Epist. ad Haller, II.

‡ Abhandlung von der Wirkungen des Camphors und Calomels in anhaltenden Fiebern.

sion, and cannot well be given too soon. It calms the low delirium, produces a genial glow on the surface, and seems to act as a steady, permanent cordial.

Rarely given in sufficient doses.

In our own country, however, it is rarely employed in doses sufficiently large to be of service, as I have already had occasion to observe. Giseke was accustomed to begin with half a drachm, and increase the dose to a drachm, three or four times a-day or oftener *. It was given with equal freedom by Stoll †, Salle ‡, and Chambon de Montaux §: and Collin after several hundred trials affirms, that he has never in a single instance found the pulse quickened, or the heat of the body increased, by giving it to the amount of half an ounce a-day. It has by many practitioners been united with some acid; and in the form of an acetum camphoratum, was at one time a very favourite, and no doubt effective, medicine in Germany ‖.

Acids: their action.

Acids, indeed, of all kinds, and acidulous drinks, are of great benefit in typhus. They allay the heat, tranquillize the restlessness, support the strength, and oppose the tendency to putrescency. The muriatic was preferred by Sir William Fordyce, but the sulphuric appears to be equally efficacious, and is much pleasanter.

Wine: how best employed.

The best cordial is wine, and it must be given in proportion as the living power flags. We must be cautious, however, in first administering it; for its very stimulus produces exhaustion, and consequently increased torpitude: and we should invariably recollect, that when we have once commenced with its use, we can never leave it off; and should hence begin with such doses only as may be safely persevered in, or even increased if necessary.

Spirit of wine given formerly.

Under the influence of Dr. Brown's name, both wine and spirits were lately given in enormous quantities; and

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* Abhandlungen, &c.

† Rat. Med. III. 89.

‡ N. Beitrage, I. 171.

§ Traité de la fièvre maligne.

‖ Ludwig, Adversaria, I. i. N. 1. Bonnevault, Hantesierk Recueil, II. p. 228.

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Cured by ebriety.

Phosphorus.

it is possible that in a few instances the practice may have been successful: but the risk is great and empirical; yet by no means of so late an origin as Dr. Brown's name would incline us to believe: for Borelli, Chambon de Montaux, and Reidlin gave it quite as largely, and at least with as much success. Borelli prescribed it in injections *; Reidlin assures us that he cured a patient by administering a large dose of spirit of wine †, upon which Brown does not appear to have ventured; and we are told by another writer long before Dr. Brown's time, that he completely succeeded in conquering a typhus by making his patient drink wine to ebriety on a critical day ‡. Of phosphorus, which was also a famous cordial at one time, I can say nothing §.

Opium.

Best in union with camphor.

The same remark will apply to the use of opium, which appears, in many cases, to be of less service in typhus than in many other species of fever, and by no means entitled to the unmeasured eulogy bestowed upon it by Dr. Home, who contended that in every case of typhus it was the most useful medicine we can have recourse to; that it procures rest without any inconvenience; and that it is more to be depended upon than camphor, castor, the sedative salt of Homberg, or any other medicine of the same class ‖. It is best given in combination with camphor; and there is ground for the assertion of Lasonne and Halle, that, thus united, it produces less confusion of the head and disturbance in the dreams: and, so far as I have seen, it agrees better with the young than with those of middle life.

Antimonials not often useful.

Antimonials are a doubtful remedy: they tend to throw the action towards the surface; but, as relaxants, they tend at the same time to diminish the tone of the

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* Cent. I. Obs. 55.

† Lin. Med. 1695. p. 220.

‡ Eph. Nat. Cur. Dec. I. Ann. III. Obs. 145.

§ Vater, Diss. Phosphori loco medicamenti adsumpti virtus medica. Witteb. 1751. Thomas, Diss. de usû Phosphori. Regiom. 1762.

‖ Clinical Experiments, Histories and Dissections. 8vo. Edinb. 1780.

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muscular fibre. It is not often that they can be employed with advantage. Blisters, judiciously interposed, will be found, in many instances, a useful auxiliary, and especially where the head is much affected; but the body should not be covered over with them, as is often the case from head to foot, so as to be highly distressing to the patient, and to exhaust the little irritability he has left. Cataplasms or bottles of hot water applied to the feet, when the circulation is unequal, will often be a better practice.

Yeast.

Yeast, as an antiseptic, was strongly recommended to be taken into the stomach by many practitioners about twenty or thirty years ago, and numerous cases were published of the wonderful cures which it performed. Of late it seems to have fallen into an unmerited neglect: it is a simple remedy, easily procured, and worth a more general trial.

Diet and regimen.

During the entire course of the fever, from the time the bowels have been sufficiently evacuated, the patient may be allowed animal broths and jellies in alternation with the farinacea: he should be lightly covered with bed-clothes; his chamber should be freed from all unnecessary furniture; his sheets and body-linen be frequently changed, and be instantly taken out of the room; as should also the egestions of every kind.

Free ventilation.

Above all things the chamber should be freely ventilated, which is infinitely the best way of purifying the air, and dissolving the febrile miasm as it issues from the body: upon which subject we have already touched. Where the ward or chamber is large, or the sick are remote from each other, simple ventilation by opening the opposite windows, or the windows and door, will be sufficient. But where the wards are small, or may not admit of sufficient ventilation, or the patients are numerous, fumigation with nitric or muriatic acid should not be neglected. At present we have no reason for a preference, except that the vapour of the former appears to be rather more volatile and penetrating. Of late years there have been attempts to decry the use of fumigations,

When fumigations necessary.

Lately decried;

Gen. IV. Spec. II. ϵ E. Typhus. gravior. Putrid fever. Treatment.

and especially by M. Von Mons and Dr. Trotter, who conceive that they rather add to than diminish the septic matter of the atmosphere. On which account they rather advise to sprinkle the room frequently with water, and maintain a good fire, believing that febrile contagion is much better destroyed by pure aqueous vapour than by any other means.

but on false principles.

But this conception is founded upon a double hypothesis, and an hypothesis apparently mistaken upon both points: first, that febrile miasm, and septon, or the elementary matter of putrescency, are the same thing: and, next, that this common principle is nitrous oxyde, or oxyde of azote, agreeably to the conjecture of Dr. Mitchell. Of septon, however, we know but little; yet from the established power of hydrogene in exhausting or destroying animal irritability, it is more probable that M. Morveau's conjecture of its being a combination of hydrogene with azote rather than of oxygene with the same, is the real fact. But be this as it may, we have no more reason for believing that febrile miasm consists of either of these, than that it consists of animalcules of a peculiar kind, as was once contended for by Dr. Chandler.

How acid fumigations probably act.

Febrile miasm we have reason to believe is a peculiar and specific production; the chief properties of which I have already endeavoured to point out. Pure air unquestionably dissolves it; and hence there may be other gasses capable of dissolving it also, and even more readily; or which, combined with pure air, may render the latter a speedier and more powerful solvent. And it is probable that the vapours of the mineral acids act in this manner. In this respect they may be useful; but if ever employed to supersede ventilation, the opinion of Dr. Trotter that they do more mischief than good will be completely established. The aromas of volatile plants are of no benefit whatever; and if the fumes of tobacco were ever serviceable in the plague, it was most probably, as Dr. Cullen conjectures, from their exhilarating the spirits like wine or opium, and diminishing the irritability.

Aroma of plants. Tobacco.

SPECIES III.

ENECIA SYNOCHUS.

Synochal Fever.

COMPOUNDED OF CAUMA AND TYPHUS: IN ITS COMMENCEMENT RESEMBLING THE FORMER; IN ITS PROGRESS THE LATTER.

GEN. IV. SPEC. III. The most common form of continued fever in the present day.

It is not necessary, after our copious histories of the two preceding species, to follow up the present, which is a mixture of both, through a detailed description of its course. It is certainly the most common form under which continued fever makes its appearance in our own country; for it is but rarely that cases of fever occur which preserve a strictly inflammatory character from the beginning to the end. It is in fact an inflammatory fever bent out of its proper career, often, perhaps, by the temperament upon which it has to act; but still more frequently, as Dr. Brocklesby has well observed, by confined and vitiated air, and hence dropping its inflammatory pretensions in the middle of its course. Its causes are therefore the same as those that produce inflammatory fever. Dr. Cullen has entered it into his catalogue of genera after Sauvages and Linnéus; but with a doubt whether he is correct in so doing. "Since many fevers," says he, "are neither altogether inflammatory, nor altogether nervous, they cannot be referred either to the synocha (cauma) or the typhus: and I have hence inserted the genus synochus, whose type is frequently seen in this country. Yet between the typhus and synocha I cannot place any accurate limits; and I doubt whether they should in fact be deemed genera, or have a different place allotted them." And in his First Lines he observes,

General character.

GEN. IV. SPEC. III. Enecia synochus. Synochal fever. Supposed by Cullen to be a variety of typhus, but is rather more nearly related to cauma; whence denominated febris inflammatorio-putrida.

" I am disposed to believe that the synochus arises from the same causes as the typhus, and is therefore only a *variety* of it." To me it appears rather to arise from the same causes as the cauma, for it commences with the caumatype. The proper rank for all of them appears to be that of species; and the present system in the text-book, in allotting them this character, steers just a middle course between Dr. Cullen's actual arrangement and his real opinion. And in this view it is distinctly regarded by Dr. Stoll, who sometimes describes it as an inflammatory fever assuming a putrid guise; sometimes as equally inflammatory and putrid; and sometimes as an inflammatory fever passing into a saburral fever [*]. By Kausch, and other German pathologists, it is hence denominated febris inflammatorio-putrida [†]. It is, in many instances, the inflammatory typhus of Dr. Armstrong.

Varies in course and symptoms.

Occasionally it shows a considerable tendency to terminate its course abruptly by a critical sweat; it is sometimes peculiarly marked with yellowness of the skin; sometimes with great stupor of the head; and sometimes with inflammatory tension of the peritoneum. And it hence furnishes us with four varieties:

α Sudatorius. Sweating synochus.	Carried off by a critical sweat in an early stage of its progress.
β Flavus. Yellow synochus.	With yellowness of the skin, attended with a sense of burning heat.
γ Soporosus. Comatose synochus.	Accompanied with stupor from the beginning.
δ Puerperarum. Puerperal fever. Child-bed fever.	Accompanied with an inflammatory tenderness of the belly: mostly occurring on the third day after childbirth.

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[*] Rat. Med. III. p. 97. 106. 115. IV. 61.

[†] Gruner Almanack, 1788. p. 37.

Gen. IV. Spec. III. α E. Synochus sudatorius. Sweating synochal fever. General character.

The symptoms of the first variety open with great violence. There is usually an intense pain in the head with a vehement vomiting and purging, which is rarely removed, and sometimes augmented, by an emetic: the skin is peculiarly dry and hot. The balance of the circulating system is here greatly disturbed, and there is an evident determination of blood to the head, and probably to the liver. Like the yellow fever, it rushes forward rapidly to a state of great sensorial debility; and is best checked in its progress by a free use of the lancet, which more than any thing else takes off the tendency to congestion, and the hardness from the pulse. A diaphoresis commonly breaks out soon afterwards, which proves critical, and should be maintained by diluent drinks, and small doses of antimonials or other relaxants.

Treatment.

β E. Synochus flavus. Yellow synochal fever. General character.

In the yellow-tinged synochus there is a high degree of hepatic irritation, and consequently an excessive secretion of bile, part of which is resorbed and carried into the system: whence Galen denominates it synochus *biliosa* *. It is found chiefly in the summer season among young persons of a bilious habit, and is generally produced, like the genuine cauma, by too violent exertion under a sultry sky. It is accompanied with intolerable thirst and sleeplessness. In few words, it is a causus or ardent fever without any apparent remission; its symptoms, with this exception, are the same, and the same mode of treatment is demanded: for which the reader may turn to the second species of the preceding genus.

γ E. Synochus soporosus. Comatose synochal fever.

While the symptoms rage violently, there is sometimes a great determination to the head, with a sudden exhaustion of sensorial power; and hence, notwithstanding this local affection is more severe and confirmed than in the first variety, there is a dull and obtuse, rather than an intense and pungent pain. It is the synochus *soporosa* of Guarinon and Sauvages; and the continual fever of

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* De Differ. febr. cap. II. De Crisibus, cap. II.

Gen. IV. Spec. III. γ E. Synochus soporosus. Comatose synochal fever. Sydenham's description.

Treatment.

Sydenham for the year 1763. Among the chief symptoms, says he, was a coma, for the patient soon became drowsy and obscurely delirious. Occasionally, however, it was a direct lethargy, which continued for two or three weeks, during which nothing but a violent noise would rouse the patient; when after opening his eyes and being persuaded, perhaps, to take a little food or some medicine, he again fell into a sleep so profound, that Sauvages calls it a febrile cataphora. In some cases, however, instead of a lethargy, there was a low muttering delirium, in which the patient spoke incongruously and with fretfulness, with short snatchings of stertorous sleep interposed. The fever rarely terminated in less than fourteen days; and, when the lethargy prevailed, generally ran on to twenty-one or even thirty days. The first symptom of recovery was usually a capricious longing for some absurd kind of meat or drink. The head for many days still discovered great weakness, and even the muscles were incapable of supporting it in an erect position. Warm cordials were always mischievous: a free and repeated use of the lancet with brisk purgatives formed the best plan of cure, with diluting diaphoretics afterwards. Sauvages asserts, that blistering the head was serviceable. Epithems of ice-water over the whole head, repeated as soon as they become warm, would probably have proved far more beneficial, as soon as the vessels of the head had been sufficiently emptied.

δ E. Synochus puerperarum. Puerperal fever. Child-bed fever. Proceeding from, or combined with, peritoneal inflammation.

We find the same fever still more frequently commencing with a like tendency to the peritoneum instead of to the head, which runs rapidly into a state of inflammation, with an imperfect attempt at suppuration; and especially where this membrane has been excited by a sympathetic action with the uterus or any other adjacent organ, or by exposure to the atmosphere in consequence of a wound through the abdominal integuments. And hence this disease occurs occasionally in cases of tapping for a dropsy of the abdomen, and still more frequently after labour: on which account it is commonly known by the

Gen. IV. Spec. III. δ E. Synochus puerperarum. Puerperal fever. Child-bed fever.

name of PERITONEAL, PUERPERAL, or CHILD-BED FEVER. From the days of Hippocrates to those of Boerhaave and Van Swieten, the uterus was supposed to be the chief seat of inflammation when the disease arises from this cause. But there is now no question that it originates in the peritoneum itself, and that the uterus is often very little affected; and this too, though the inflammation should spread, as it often does, to other organs in the vicinity.

Uterus supposed formerly to be the chief seat of the disease.

Description.

The disease usually commences about the third day after delivery, or a wound made through the abdominal integuments by accident, or in tapping for a dropsy of the abdomen; though sometimes it occurs rather later. It is marked by all the common symptoms of a severe febrile incursion, in combination with the tenseness and tenderness of the belly. The muscles of the back and hips are in great pain; and as the diaphragm is affected by contiguous sympathy, the breathing is also short and laborious. The head rarely suffers much at first, but in the progress of the disease is apt to become stupid and comatose. The flow of the milk and of the lochia are suspended: the stomach is sometimes, but not generally, troubled with sickness, and frequently discharges an offensive porraceous suburra; and a troublesome diarrhœa attacks the bowels.

Inflammation of the peritoneum accounted for.

To account for the inflammation of the peritoneum, it is only necessary to recal to mind the readiness with which, in particular constitutions, or states of excitement from various internal or external causes, inflammation often takes place in interior cavities, and the rapidity with which it spreads over every part of them. It is to this principle alone we trust in effecting a radical cure for a dropsy of the tunica vaginalis of the scrotum. The cavity here is small, and we are not afraid of serious mischief; but were it as large as that of the peritoneum, he would be a bold operator who should venture upon a like mode of cure, notwithstanding that the process of adhesion, so much more easily effected in the scrotum than in the abdomen, might diminish the chance of danger.

Principle to be attended to in effecting a cure.

Gen. IV. Spec. III. ծ E. Synochus puerperarum. Puerperal fever. Child-bed fever. Explanation given by J. Hunter.

In the opinion of Mr. John Hunter, the disease takes place in consequence of an injury done to the peritoneum, as forming a cavity, by which its present state is either suddenly changed or rendered imperfect. The injury done to the peritoneum in the case of women after delivery, he ascribes, as his sentiments are delivered by Mr. Cruikshank, to two causes. Sometimes it proceeds from a want of disposition in the womb to recover itself after labour; by which the peritoneum, as a cavity, must necessarily be affected. At other times from a too sudden emptying of the abdomen; whence the peritoneum cannot always recover itself so as to be properly adopted to its new condition. This last cause, he observes, may also hold with men after the operation of the paracentesis. But, in them, besides the sudden emptying of the abdomen, there is the additional circumstance of a wound, which renders the peritoneum, as a cavity, imperfect. When an inflammation of the peritoneum occurs, it most frequently happens, as he still farther remarks, that it spreads over all the cavity of the abdomen. An extravasation of fluids takes place into that cavity mixed with pus. The different viscera adhere by their peritoneal coats. The intestines are distended with air. And the irritation, thus induced, kills the patient long before granulations or an obliteration of the cavity in the second method can occur *.

These causes rarely adequate of themselves.

Neither of these two causes, however, by themselves will often, if ever, produce the fever before us, or even peritoneal inflammation alone. For the uterus is perpetually exhibiting a morbid enlargement, without a disposition to recover itself; and the abdomen, sudden evacuation, while no such fever ensues. There must cooperate a peculiar temperament, or a peculiar condition of body at the time; and, in puerperal patients, there is especially the general pyrectic excitement which necessarily follows, upon the very great change in various

A peculiar temperament of body necessary as an accessory.

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* Edin. Med. Comment. Vol III. 322.

Gen. IV. Spec. III. ꝺ E. Synochus puerperarum. Puerperal fever. Child-bed fever.

organs which takes place upon delivery and the transfer of accumulated action from one organ to another. Another accessary is also frequently found in the constitution of the atmosphere; for whatever change is most calculated to produce fever from a morbid excitement of the abdominal viscera, cannot fail to co-operate in the production of this disease from a local cause. I have already observed that such a change most usually occurs in autumn, and have stated the grounds on which it depends, under the history of epanetus *autumnalis*, to which the reader may turn at his leisure*. And hence, so far as I have observed, a tendency to peritoneal or puerperal fever occurs more frequently at this season than at any other; and on this account it is said by some writers to occur occasionally as an epidemy†. There is much reason, indeed, for regarding it in this last view; for as most of the auxiliaries that unite in the production of contagious miasm are present in a lying-in chamber, such miasm is frequently the result; often indeed, as we have reason to believe generated, after the manner of typhous miasm, and completely elaborated in the circulating and secreted fluids of the patient herself. Of this fact there can be no longer any question, after the accounts of the disease published by Dr. Gordon of Aberdeen, and Dr. Young of Edinburgh, as it appeared in the lying-in infirmaries of these cities; in which woman after woman continued to be infected to a very great extent, and especially where they had had close communication with puerperal patients, or had even been attended by nurses or midwives who had previously attended the latter without sufficiently changing their malignant dress. This disease was only subdued by the ordinary means employed to exterminate contagious miasm, such as great cleanliness, repeated change of sheets and body-linen, free ventilation, and a total sepa-

A peculiar temperament of the atmosphere.

Hence occasionally becomes an epidemy.

Contagious from miasm generated as in typhus.

Proofs of infection.

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* See Vol. II. Cl. III. Ord. I. p. 137.

† Clark, Edin. Med. Comment. Vol. III.

Gen. IV. Spec. III. E. Synochus puerperarum. Puerperal fever. Child-bed fever.

ration of those who were labouring under the disease from those who were about to be confined.

Contagious effects why limited to puerperal patients.

In all kinds of contagious fevers we find that some persons are more liable to be infected than others from incidental circumstances; and, as I have already had occasion to observe in laying down the laws of febrile miasm so far as we are at present acquainted with them, that the miasmic corpuscles are modified in a few of their properties by the accessaries to which they are exposed, or by which they are produced. And by bearing these facts in mind, we shall have no difficulty in accounting for the limitation of this contagious fever to puerperal women, and the exemption possessed by persons who are not under the same circumstances. For, operative as the miasm unquestionably is when the predisposition exists, and the abdominal organs are thrown out of the balance of healthy action, it is inert where no such predisposition is to be found, and these organs are in elastic vigour.

Whether febrile miasm modified or a specific contagion.

But whether the miasm thus generated be the common febrile miasm we have contemplated in several of the preceding species, merely modified in its powers by accidental circumstances, or a contagion specific and peculiar to itself, is a question which, at present, we have not the means of determining.

Imperfect attempt at suppuration.

I have said that in the inflammation which takes place, there is an imperfect attempt at suppuration. The fluid secreted or effused is usually a whey-like material, or milky ichor, or, as Mr. Cruikshank has described it, an extravasated matter mixed with pus. But Dr. Hulme* asserts, that he has sometimes found genuine pus apparently secreted without ulceration; aud Dr. Meckel informs Baron Haller, that he has witnessed the same very extensively†. The nature of the fluid will, indeed, entirely depend upon the vehemence and rapidity of the inflammatory process. Where this is less violent, the secretion,

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* Treatise on the Puerperal Fever.

† Epist. ad Haller Script. Vol. III.

GEN. IV. SPEC. III. δ E. Synochus puerperarum. Puerperal fever. Child-bed fever.

as from the surface of other mucous membranes, may be purulent or even genuine pus, and has sometimes amounted to several pints; but, where more violent, it will be a milky, caseous, or whey-like serum. It is rarely however so mild and temperate in its march as to produce pus; often running on, as Dr. Hulme has observed, to a state of gangrene at once: and in some instances has been found to involve the intestines, omentum, and all the neighbouring viscera, in the common mischief, as has been abundantly established by post-obituary examinations*. And hence, the uterus itself has sometimes participated in the inflammation, and has shown pus or gangrene according to the vehemence and rapidity of the morbid influence†.

Inflammatory range often very extensive.

General treatment.

The general treatment of this disease should very closely resemble that already laid down for the severer varieties of the malignant remittent, which it very much resembles, with the exception that the fever is continual instead of being relaxant; and that the local irritation is seated in the peritoneum instead of in the liver or any other organ. This inflammation must be subdued, and that speedily, or the patient will perish; and hence, abstraction of blood and calomel purgatives are the arms on which we have chiefly, if not solely, to depend; and both should be employed decidedly and to as great an extent as we dare.

Venesection.

Eighteen or twenty ounces of blood should be drawn from the arm, as soon as possible after the commencement of the disease, and repeated within twelve hours if necessary, and the strength will allow: but if venesection have not taken place before the third day, the debility will have gained so high an ascendency, and the general symptoms put on so putrescent a complexion, that little benefit is to be gained from it. The bowels should at the same time be moved by six or eight grains of calomel given in the

Cathartics.

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* Hulme, ubi supra. De la Roche, Recherches, &c.

† Bang, Act. Soc. Haffn. I.

Gen. IV. Spec. III. 3 E. Synochus puerperarum. Puerperal fever. Child-bed fever. Treatment.

form of a pill; and the same preparation, to the amount of three or four grains, should be continued every six hours till the tension and soreness of the abdomen have abated.

Neither adviseable in some cases.

It happens not unfrequently, however, that the patient's frame is so weak and delicate that we should risk more by drawing blood generally than even by leaving the case to nature; as it does also that the stomach and bowels are from the first in a very high degree of irritation, with violent purging and vomiting, and will not bear any additional stimulant. Our wisdom is here to yield to circumstances, and let the general rule admit of particular exceptions. Instead of the lancet, we have recourse to leeches, and in this manner remove twelve ounces of blood at the least; and with smaller doses of calomel we must unite opium. It does not follow that calomel in such a combination will increase the irritation of the stomach or bowels; I have often seen the contrary; and that by the exhibition of two grains with one grain of opium, repeated every five or six hours, the irritation has yielded to the commencement of a new action. Warm and anodyne fomentations to the abdomen are usually prescribed at the same time, and are often found palliative; but the common mode of applying them makes the bed wet and gives great fatigue to the patient. And hence, I have ordinarily prescribed a large piece of folded flannel wrung out forcibly in as hot-water as can be borne, to be applied over the whole of the pubes and abdomen, and covered by a broad flannel or linen swathe passed under the loins and folded over the epithem of reeking flannel, which is to remain for many hours, or till it becomes dry. All that is wanted in this application, as in a common bread-and-water poultice, is warmth and moisture; the flannel answers the purpose as well as the bread; and whilst I do not recollect a single instance in which this application has not been soothing and serviceable, I have never met with a case in which a chill has been complained of.

Local depletion.

Opium.

Fomentations.

Best and simplest mode of application.

Diaphoretics.

In the mean time, a diapnoe or breathing perspiration

GEN. IV.
SPEC. III.
δ E. Synochus puerperarum.
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on the surface should be attempted by small doses of ipecacuan, united with opium in the form of Dover's powder, and with the addition of a solution of acetate of ammonia *; and if the debility be very considerable, we may employ free doses of camphor, beginning with half a scruple, and proceeding to half a drachm at a time, every four or five hours, with great advantage.

Camphor.

If this plan should not answer, and the skin be still hotter, drier, and more pungent to the touch, the pulse quicker and more wiry, and the tongue deeper furred, it may be adviseable to exchange epithems of hot for those of cold or even ice-water, as already recommended in cases where the head is chiefly affected instead of the peritoneum. I freely confess that I have not tried this plan myself hitherto, but it is strongly recommended by Loeffler and other physicians of great repute; and as it is a practice in common use in our own country in the case of flooding, without any evil resulting from it, we have no reason to expect any evil in the case before us; for the sensibility is here still more obtunded than in flooding, and nearly as much as in deliquium.

Cold epithems to the abdomen instead of warm.

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* Beyträge zur Wondarzneykunst. Band. I.

CLASS III.

HÆMATICA.

ORDER II.

PHLOGOTICA.

Inflammations.

FIXED HEAT AND PAIN OR SORENESS; INCREASED SECRETION; LESION OF A PARTICULAR PART OR ORGAN; MOSTLY ACCOMPANIED WITH FEVER.

CLASS III. ORDER II.

The species sometimes called local Inflammations.

THE diseases comprised under this order are sometimes called Local Inflammations; as the term General Inflammation is, by a few writers, and particularly by Dr. Fordyce, applied to Cauma or Inflammatory Fever. In the present text the ordinal name made choice of is PHLOGOTICA, from φλέγω, "incendo," "ango." Linnéus employs *phlogistica* from the same root; but as the chemists have long since laid hold of phlogiston, and the term, though lately disused, has a chance of being restored, the derivation PHLOGOTICA seems preferable. Dr. Cullen has PHLEGMASIÆ, after Galen and Sauvages; but as *phlegmasia*, and *phlegmatic*, from the same source,

Phlogotica why used as the ordinal term.

import, in common medical language, a very different and almost an opposite idea, the author has also purposely passed by this term in order to prevent confusion. The nature of the fever accompanying the inflammation cannot enter into the definition; for this will vary with the nature of the inflammation itself, and not unfrequently with the structure of the organ. But we may make this observation, that the symptomatic cauma, or symptomatic inflammatory fever, seems to have followed the fortune of this fever in its idiopathic state; and to be as much less common in the present day, compared with what it was formerly, as we had occasion to observe the simple cauma is when treating of that disease. Such is also the remark of Mr. Hunter. "I believe," says he, "we have much less occasion for evacuations in inflammation than there were formerly; the lancet, therefore in inflammation, and also purgatives, are much more laid aside *."

Nature of the fever depends upon that of the inflammation.

Inflammatory fever a less frequent concomitant than formerly.

When an inflammation takes place near the surface of the body, there is not only heat and pain, or soreness, but more or less swelling, hardness, and redness, and we hence infer the existence of these last symptoms in inflamed parts which lie beyond the reach of vision.

Inflammation how ascertained when deep-seated.

Inflammation in most cases appears to begin at a point; for, at the commencement, all the local symptoms are within a very small compass. The spreading of the inflammation is owing to continued sympathy, the surrounding parts participating with the point of irritation; and in proportion to the health of the surrounding parts, and constitution, this sympathy is less.

Origin and progress of inflammation.

The act of inflammation seems to consist in an increased action of the vessels; mostly, if not altogether, of the extreme vessels; for wherever inflammation appears, it may be confined to a point in which none but the smallest vessels can exist.

The first act of the vessels when the stimulus which

Commences as a blush;

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* On Blood and Inflammation, p. 227.

Class III. Order II. Phlogotica. Inflammations.

excites inflammation is applied, Mr. Hunter supposes to be precisely similar to a blush; and to consist in a simple distension or increased diameter beyond their natural size; such as we see take place on the application of a gentle friction, or of gently stimulating medicines, to the skin; and the consequence of which is a warm glow, when limited to the degree we are now supposing; but which, if carried farther, would be followed with excoriation, suppuration, and ulceration.

and is accompanied with a gentle glow.

Coagulating lymph is next separated:

The inflamed vessels, being thus enlarged and irritated, begin to separate from the blood they contain some portion of its coagulating lymph, together with some serum, and red globules; and to throw these materials out on the internal surface of the part inflamed; probably through the exhalants, or, perhaps, through new vessels which may be now forming around them; whence the sides of the cellular membrane, which receive the effusion, become covered with it, unite with the opposite sides with which they are in contact, and thus form the first foundation of adhesions. The increased bulk of an inflamed part is produced chiefly by this effusion; and the increased redness, partly by the larger quantity of blood continued in the distended old vessels, and partly by the production of new vessels formed out of the coagulable lymph thus extravasated; and which, by innumerable inosculations and adhesions, interpose a check to suppuration, which would otherwise most probably take place.

and produces adhesions, together with increased bulk:

and new vessels.

Hence inflammation, increased impetus, and accumulation of blood. Accounted for by an obstruction.

Inflammation, therefore, consists in an increased impetus and accumulation of blood in the vessels affected, accompanied with a proportionate swelling and sense of heat. The physiologists have pretty generally concurred in ascribing this accumulation of blood to an obstruction of some kind or other; but they have differed upon its nature and origin; and have not been able to determine whether it be dependent upon the crasis of the blood itself, or the resistance of the vessels that contain it.

Generally speaking, however, it has by all the schools of medicine been ascribed to whatever has been supposed to be the proximate cause of fever: and hence the humoral pathologists attributed it to a lentor or viscidity of the circulating fluid; and the corpuscular, to an error loci, concerning both of which we have already treated; the cause of obstruction in the view of either hypothesis, being seated in the nature or misdirection of the constituent parts of the blood itself: while Dr. Cullen refers it to the same kind of spasm which he regarded as the proximate cause of fever; and hence derived the obstruction from a constrictive resistance in the vessels of the part affected: which, he farther supposes, forms but a mere link in the tensive chain of a phlogistic diathesis, which more or less runs through the entire habit at the time of inflammation, and constitutes the predisposition to its rise and progress.

Proximate cause of obstruction explained variously.

Doctrine of the humoralists:

of the corpuscularians:

of Cullen.

"That a spasm," says he, "of the extreme vessels takes place in inflammation, is presumed from what is at the same time the state of the whole arterial system. In all considerable inflammations, though arising in one part only, an affection is communicated to the whole system; in consequence of which an inflammation is readily produced in other parts besides that first affected. This general affection is well known to physicians under the name of *diathesis phlogistica.* It most commonly appears in persons of the most rigid fibres; is often manifestly induced by the tonic or astringent power of cold; increased by all tonic and stimulant powers applied to the body; always attended by hardness of the pulse; and most effectually taken off by the relaxing power of blood-letting. From these circumstances it is probable that the diathesis phlogistica consists in an increased tone or contractibility, and, perhaps, contraction of the muscular fibres of the whole arterial system*."

To the first two of these hypotheses the same objections apply that we have already seen apply to them as

Objections to the first two hypotheses.

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* Pract. of Phys. Vol. IV. Sect. CCXLVII.

causes of fever. That an error loci occasionally takes place, or, in other words, an entrance of red or other particles of blood into minute vessels to which they do not naturally belong, is unquestionable; but then this is rather a secondary than a primary link in the chain of inflammation, and consequently an effect rather than a cause, as we shall presently have to notice more at large.

Yet the hypothesis of Dr. Cullen does not seem to be more satisfactory, and is especially open to the two following objections, to say nothing of various minor difficulties with which it is attended.

Objections to Cullen's hypothesis.

It supposes, in the first place, as a general rule, that inflammations of every kind, however minute and circumscribed, are dependant upon a particular habit of body at the time, distinguished by the name of a phlogistic diathesis. But we see inflammations occurring in habits of every kind, and varying in many of their features according to the variety of the habit; and we see them also arise in individuals who have no such phlogistic habit or diathesis as is here referred to. And we often, moreover, see examples of this very diathesis operating upon individuals for years, without producing any such effect as inflammation in particular parts. And we cannot, therefore, regard such a diathesis as a proximate cause of inflammation in general, though it may often be so of a particular kind of inflammation. Dr. Cullen, indeed, was aware of this difficulty, and even admits it. "Such a state of the system," says he, "seems often to arise and subsist for some time without the apparent inflammation of any particular part; but such a state of the system renders it *likely* that a spasm *may*, at the same time, readily arise in any of the extreme vessels, and a particular inflammation be there produced. It does, however, appear also, that the general diathesis frequently arises from inflammation begun in a particular part*."

'ts incongruity.

Difficulty of his own explanation admitted by Cullen.

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* Loc. citat.

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Now this is not only to admit the difficulty but to fall prostrate before it. It is to admit what at once settles the entire question. The cause and the effect are made to change places: and the phlogistic diathesis is as broadly stated to originate from inflammation in a particular part, as inflammation in a particular part is stated to originate in the phlogistic diathesis.

At variance with the common phænomena of inflammation:

But, secondly, this hypothesis seems not only to be chargeable with incongruity, but to be directly at variance with the ordinary train of phænomena by which inflammation is accompanied. That the habit here alluded to under the name of diathesis phlogistica exists, and that very frequently, is not to be questioned; and Dr. Cullen has very lucidly described what is ordinarily meant by it. "It seems probable," says he, "that the diathesis phlogistica consists in an increased tone or contractility, and perhaps in an increased contraction of the muscular fibres of the whole arterial system;"—"it appears most commonly in persons of the most rigid fibres." But I believe it will be found by every one who investigates the subject, that so far from this being the habit of body in which inflammation is most frequently to be met with, it is that in which it occurs more rarely than in many others. That it occurs in it at times is unquestionable, for inflammation under some form or other occurs in habits of every kind: but if we look for specimens of larger or smaller inflammation, of deep-seated or superficial, nay, even of suppurative or ulcerative, we shall meet with them, if I mistake not, far more generally in constitutions marked by mobile and irritable than by firm and rigid fibres; in habits characterized by atonic rather than by entonic action. It is not till the constitution has been broken down, and the liver rendered feeble and torpid by the influence of a tropical sun, that hepatitis makes its appearance in its ordinary course of attack; phthisis occurs in relaxed and delicate, and not in hardy and robust frames; psoas abscess, peritoneal inflammation, struma, and those vast formations of pus which are sometimes found in parabysmic tumours

which occur more frequently in atonic than entonic habits.

or physconics, for the most part follow the same track; while the best, if not the only remedy for the innumerable host of erythematic inflammations, whether erysipelatous, gangrenous, or vesicular, pernio or intertrigo, is to raise the part or the constitution to that scale of vigour the reduction of which is well known to form a common predisposition to all of them. That there may exist such a condition of body as an inflammatory diathesis, or a predisposition to inflammatory action of some kind or other, according to the idiosyncrasy or established habit, or some controlling accident, is unquestionable; but such a diathesis cannot be made synonymous with the phlogistic diathesis as described by Dr. Cullen, unless there be but one kind of inflammation, and that such an inflammation as has a natural and necessary relation to the entony and rigidity of fibre which is here presupposed.

Summary of what is known upon the subject:

The little that we know upon the subject may, perhaps, be comprized in a few words: The standard of firm health is the best guard against inflammations of every kind, or the state in which a man is least susceptive of them; and a deviation in either direction, whether towards a habit of entony or of atony, capacifies him for breeding them. But it does not capacify him equally: for in the latter case they are produced far more easily and generally than in the former. In fibrous entony, obstruction appears to take place, and inflammation to follow, from an increased tendency to constriction and rigidity in the muscular tunic of the arteries generally, and an actual constriction in those of the part affected; in consequence of which the diameter of the tube is diminished, and the blood, though urged by a stronger impetus from behind, works onward with less freedom than usual. In fibrous atony, obstruction takes place from the relaxed and yielding state of the vessels which admit grosser corpuscles of the blood than what naturally belong to them, and thus become accessary to the error loci of the Boerhaavian school. But a mere error loci is not sufficient for inflammation; since the erratic

in an entonic state of fibres:

in an atonic state.

corpuscles are readily forced back, or pass diagonally into larger vessels from the numerous anastomoses that prevail in the arterial system. Of this we have a pertinent example in the red suffusion which frequently takes place in the tunica albuginea of the eye, which is often an effect of weakness alone, is unaccompanied with heat or pain, and consequently with inflammation, and perhaps passes off by the next day. In addition, therefore, to the relaxed state of fibres and the error loci before us, there must be something of that irritability which is so frequently an attendant upon relaxed and mobile organs, and which produces spasmodic and contractile action in a far higher degree, though, perhaps, in irregular fluxes and refluxes, than any habitual firmness or rigidity of fibre does at any time.

In both a peculiar susceptibility of irritation.

And as in weak parts or habits a peculiar susceptibility of irritation seems to be a necessary adjunct in the production of inflammation, it is possible that it may be equally necessary in the opposite state of excessive firmness and rigidity of fibre; since this also, as just observed, will, at times, continue for years without giving rise to any inflammation whatever, and seems equally to demand an exciting accessary. And hence the real inflammatory or phlogistic diathesis, constituting however a remote, more properly than a proximate cause, is perhaps to be found in increased irritability of the living fibre rather than an increased rigidity and vigour.

Remote causes.

Concerning then the proximate cause of inflammation, there is yet much to be unravelled. Of its remote causes and a few of its laws, we are in some degree better informed. The remote causes may be contemplated under the three following divisions:

Accidental violence.

First, some accidental violence applied to a part, so as to make a wound or bruise from which it cannot recover except by the process of inflammation, or which, at least, has a natural tendency to excite such a process.

Local irritation.

Secondly, some irritation which does not destroy the texture of the part, but merely its natural action; as pressure, heat, cold, blisters, pungent applications, and often fevers of every kind.

Particular disposition to inflammation.

Thirdly, a particular disposition to inflammation, founded, perhaps, as we have just observed, in an irritability in the morbid part itself, and which we often behold in constitutions of the best state of health; affording proof that the general habit is not, in such cases, concerned in the morbid change. Inflammations from any of these causes will, however, partake of the character of the constitution; and hence proceed kindly or unkindly, according as the constitution is in a diseased or a healthy condition. Yet the general principle of inflammation is the same in all; for we can only contemplate it as a remedial process, an instinctive effort, or exertion of the vis medicatrix naturæ, to bring about a re-instatement of the parts nearly to their natural functions.

Inflammation the same in principle;

yet differs in its mode of action.

Yet, though inflammation is uniformly the same in its principle, it often differs widely in its mode of action, and consequently in its result; for as it has a tendency to partake of the character of the constitution, and especially where it is extensive, according as the constitution is healthy or unhealthy, so will be the nature of the inflammation and the diversity of its progress.

Healthy inflammation.

Healthy inflammation consists probably of one kind alone, and is no farther divisible than into different stages of a restorative action, the effect of an instinctive stimulus rather than of morbid irritation. Unhealthy inflammation consists of many species, for numberless are the diseases that affect the health of the constitution; and consequently that may influence the character of the inflammation, by superadding peculiarities or specific actions of its own: though it is often affected also by the particular condition of the part in which the inflammation takes place. And hence it is no uncommon thing for particular parts to run into particular inflammations with the character of which the constitution has little concern; such as those that are occasionally found on the skin, particularly the erysipelatous, as they are commonly but

Unhealthy inflammation.

Illustrated.

not quite correctly denominated, and which we shall presently have to describe under the name of erysipelatous erythema.

Three different effects of healthy inflammation; adhesive, suppurative, and ulcerative.

Simple or healthy inflammation is capable of producing three different effects, which, where the whole take place healthily, follow in regular order, and constitute so many stages. These are adhesions of the parts inflamed, suppuration, and ulceration; to which three different effects Mr. Hunter has given the names of the adhesive, the suppurative, and the ulcerative inflammation.

Good reason for contemplating it under these three effects as so many states or stages.

There is good reason for this division into different heads; for although, where the whole take place healthily, they follow in the order now enumerated, yet the whole do not always take place either healthily or unhealthily; nor is the order thus enumerated in every instance attended to. For pus, as we shall have occasion to observe more largely hereafter, is often produced when there is no adhesive inflammation; and ulceration, when there is neither adhesion nor suppuration: while occasionally the suppurative and adhesive inflammations take place simultaneously; the former being hurried on before the other has completed its own bounds, as is often the case in peritoneal inflammation after child-birth. The degree of violence also with which the inflammation commences, produces a considerable influence upon these points; and the nature of the parts themselves still more.

With the nature of the parts that constitute the chief fields of inflammation, it is of high importance that we should make ourselves deeply acquainted from the first, that we may be able to determine concerning the particular course the inflammation is likely to run, and regulate our treatment accordingly. And it is of still farther importance that this subject should be attended to on the present occasion, because it is on this distinction of parts, producing a natural tendency to distinct inflammations, that the genera of the order before us are principally constructed.

CLASS III. ORDER II. Phlogotica. Inflammations. Hunter's observations on the subject, of high value.

The whole of the observations of Mr. Hunter upon this interesting point are entitled to the most patient study, and cannot be too closely committed to memory. In the present place I can only remark, that, in treating of inflammation, he divides the body into two parts: firstly, the circumscribed cavities, organs, and cellular membrane which connects them; and, secondly, the outlets of the body, commonly called mucous membranes, as the ducts of the glands, alimentary canal, and similar organs. He distributes inflammatory affections, as I have just observed, into three sorts, adhesive, suppurative, and ulcerative. Adhesive inflammation belongs chiefly to the former of the above two parts of the body, *where they are deeply seated;* and appears intended to take place for the purpose of preventing suppuration. It applies, therefore, peculiarly to that genus of the present order which we shall denominate EMPRESMA, and which will embrace the visceral organs, allowing for one or two exceptions that are occasionally interposed. Suppurative inflammation belongs chiefly to the same division of parts *placed near the surface;* and consequently applies to the two genera here denominated PHLEGMONE and PHYMA, embracing small cutaneous abscesses of various kinds. The ulcerative inflammation belongs chiefly to the second order of parts, as the mucous membranes and outlets; and hence applies principally to the genus ERYTHEMA, OR INFLAMMATORY BLUSH; often, but improperly, called erysipelas, which is an exanthem or eruptive fever, accompanied with erythema. It also applies to that peculiar inflammation which characterizes the whitloe, and will be found in the present arrangement under the genus PHLYSIS. Deep-seated suppurative inflammations and abscesses cannot well be placed in either of the genera we have thus far noticed; and have a claim to be considered by themselves. They are hence included in the genus APOSTEMA, with which the order will be found to open.

Adhesive inflammation, where chiefly seated.

Suppurative, where chiefly seated.

Ulcerative, where chiefly seated.

Inflammation how

Inflammation, therefore, is influenced by the nature of

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the part in which it takes place. It is also, as we have already observed, equally influenced by the nature of the constitution itself; and, thirdly, it is influenced by the nature of the remote cause. And we may add, that, where the inflammation is regulated by the constitution, and the constitution itself is healthy, specific irritants will not change the nature of the inflammation, but only determine its situation, extent, duration, or some other peculiar property. But where the constitution is unhealthy, or predisposed to any particular morbid action, as that of erysipelas, putrid fever, or plague, (for some individuals receive even the plague much more readily than others,) as soon as the specific virus is communicated, the disease will degenerate into a mixture of both, and discover its double source; it will give proof that a specific inflammation has been set down upon a constitution of a peculiar kind, and will partake of the nature of both. In consequence of which, the specific properties will by no means be so distinct or well formed as if they were to appear in a sound and untainted constitution.

far affected in its character by incidents.

Not changed by specific irritants in sound habits;

but greatly changed in unhealthy; as are the specific irritants themselves.

Thus, if the constitution have a susceptibility to become putrid, and the small-pox attack it, the inflammation will be that of the small-pox combined with the constitutional tendency to putrescency; which will so far affect the action of the small-pox as to interfere with the specific difference of its inflammation. In consequence of which, the pustules will spread, but not suppurate, and assume a livid hue, and perhaps prove fatal; while if another person possessing an uncorrupt and, so to speak, unbiassed constitution, be inoculated even with this mixed virus, the variolous principle will separate itself from the principle with which it is combined, improve with the improvement of the new soil, and yield a crop of genuine and unadulterated pustules.

Illustrated.

In like manner vaccination is, generally speaking, a specific preservation against the small-pox. But it sometimes happens that it is not so; and that the small-pox

Farther explained from vaccination.

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is caught and makes its appearance many years after vaccination has been resorted to, and performed with all possible circumspection. And it generally happens in such cases, though not always, that a mixed or hybrid disease, a sort of degenerate small-pox of a milder character than the true, is hereby produced.

Application of these remarks to various singularities and apparent anomalies.

The remarks just laid down will furnish us with a clear and sufficient clue to these singular and interesting facts. Some persons have a peculiar predisposition to small-pox, which is by no means easily eradicated, and far less so than in others. Vaccination, which permanently counteracts the predisposition among mankind in general, does not permanently counteract it here. It introduces a new but less rooted diathesis, and the former is rather suppressed than extirpated. In process of time the predisposition revives, re-acquires its anterior influence, and the moment it comes in contact with variolous contagion, subjects the system to small-pox. But while the variolous diathesis is thus again become predominant, the vaccine diathesis has not altogether lost its hold; and the disease, as in the preceding cases, is a mixed product of both causes in co-operation, or rather in antagonism. It is small-pox raised upon a constitution not yet totally liberated from the influence of vaccination; I say, "not yet totally liberated," because we occasionally meet with instances in which the constitution, little open to the impression of the vaccine disease, even when first communicated, becomes in time liberated from its influence altogether, and receives the small-pox, after vaccination, as freely as if it had never been vaccinated, and with a violence that proves fatal in a few days.

Inflammation always shows a tendency to the surface,

It is a wise and beneficent law of providence, and affords an incontrovertible proof of the existence of an instinctive remedial power, that inflammation, wherever seated, is always more violent on the side of the inflamed point nearest the surface, and shows a constant tendency to work its way externally rather than internally. This law applies equally to the thorax, to the abdomen,

even in deep-seated parts.

and to parts which lie close to the different outlets of the body. Thus, if an inflammation attack the peritoneum covering an intestine, and adhesions are hereby produced between the two, the inflammatory action works upwards through the thick walls of the abdominal muscles, while the proper coats of the intestines in most instances remain sound. This, indeed, is not always the case; for the inflammation may be so violent as to pass in both directions with great rapidity, or some accidental circumstance may guide it inwardly; but it is so common as to form a general rule. We see the same thing in the obstruction of the natural passage of the tears producing a fistula lachrymalis; for here the ulceration points externally to the inner angle of the eye, while the inside of the nose defends itself by becoming thicker; so much so, in many cases, as to block up the cavity of the nostril, and produce inosculations with the septum; which has been an occasional cause of failure in the usual operation for this disease *. We even find that if an abscess form in a frontal sinus from an obstruction in its duct, the matter will rather work its way externally through the frontal bone than descend into the nose. In like manner, if an inflammation attack the cellular membrane on the outside of the rectum near the anus, although the latter be in contact with the inflamed part, the inflammation will extend to the skin of the buttock, while the gut itself is often but little affected.

Farther illustrated by eruptive fevers.

For the same reason we behold eruptive fevers conducting the specific poisons which excite them, as small-pox, measles, rosalia, or scarlet fever, and even the plague itself, to the surface of the body, rather than throwing them on parts that are deep-seated and vital. The cancer is said to form an exception; but even here the progress of the disease towards the surface is quicker than its progress towards the centre: while syphilis exhibits

Whether cancer forms an exception:

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* See Hunter on Blood, Inflammation, &c. Part II. Chap. ix.

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something of a similar disposition though not in an equal degree.

whether syphilis.

Hence healthy inflammation a remedial process: illustrated by a brief review of its march.

It appears then that simple or healthy inflammation is a remedial process for restoring a part to soundness when affected by a morbid impression that has a tendency to injure or destroy it: and that the first stage of this process consists in the effusion of a coagulable lymph, which binds the weakened organization into a closer bond of union, creates new vessels, and consequently introduces new life. If this effort do not succeed, and the morbid action still continues its progress, the affected part dies to a certain extent; but the coagulable lymph which has been thrown out, and introduced new vascularity around it, still sets a boundary to the destructive career, and prevents it from spreading into the neighbourhood, or at least from spreading as far as it otherwise would do. When, however, a part is thus killed or destroyed, it becomes a substance foreign to the body, and must be removed, and have its place supplied by a formation of new living matter. The process of suppuration, which we shall explain under the genus APOSTEMA, prepares equally for the removal of the dead matter and the formation of that which is to fill up its post. This, however, is the progress of healthy inflammation alone; for, as already observed, in unhealthy inflammation, the morbid action will often run on to the ulcerative process or last stage at once; or the adhesive, or the suppurative may intermix with it; or all may imperfectly take place together.

Remedial treatment.

Resolution: its import.

When to be attempted.

In attempting the cure of inflammation, our first endeavour should be to obtain what has been called a resolution of the general enlargement; or, in other words, a restoration of the part to its state of former health, without the necessity of its going through the entire range of the inflammatory process. And in doing this we are to be guided by the principle of being able to make a new impression upon the part, and to oppose a healthy or remedial to an unhealthy and mischievous action. The nature of the cause must hence be sedulously inquired into, for till this is ascertained and removed, it will be in vain to expect that resolution can take place, and where we can speedily accomplish such removal, resolution will often follow spontaneously; for the animal economy having a disposition in itself to discontinue diseased action, such action will readily subside upon a disappearance of the cause that maintains it. And hence by taking off the venereal action by the use of mercury, in the case of a bubo, the inflammation will gradually cease, provided no other morbid action has already arisen and united itself with the syphilitic.

When to be desisted from.

Resolution, however, is not always to be attempted; for there are many cases in which the attempt would be in vain, and possibly a few in which it would be improper. It is not to be attempted in accidents where there is a considerable exposure of the injured part; and still less in accidents where the part has been killed by their violence: for in these, suppuration is the first natural step to a cure, and we cannot prevent it if we would.

How distinguished from repulsion.

Where inflammation arises from a morbid predisposition in the constitution, and belongs to the description which has been called critical, there is some doubt, and much demand for circumspection: and in this case resolution is called repulsion. If the inflammation be really a concentration of the consitutional complaint, which, by being driven from the part fixed upon, may be again diffused over the entire frame, and in waiting to fasten on some other part, it will often be better to encourage its stay. But the determination even in this case must be subject to the two following conditions: first, that the inflammation so concentrated will readily admit of a cure; and, next, that the part on which it fixes is not of vital importance; for otherwise the remedy may prove worse than the disease.

When resolution is determined upon, independently of removing the cause of the inflammation, we may advantageously follow up its effects by all the common modes

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employed for this purpose, according to the nature of the particular case. The undue degree of action may be diminished by bleeding and purging; the distension by local applications that tend to contract the diameter of the vessels, as cold, and metallic or other astringents; and if along with the distension there should be great pain, narcotics and relaxants will generally be found useful auxiliaries. To these in the present day are often added nausea and vomiting, the former of which operates by lowering the action of the vessels; the latter by giving a tendency to a new action. The nature of the case must determine our choice.

GENUS I.

APOSTEMA.

Aposteme.

LARGE, SUPPURATIVE INFLAMMATION IN A DEEP-SEATED ORGAN; PUS COPIOUS AND CONFINED.

GEN. I. Import of the generic term among the Greek and Latin writers.

THE term APOSTEMA is Greek, from ἀφίστημι, "discedo," "abscedo,"—whence the Latins employed ABSCESSUS, to express the same general idea. Yet they did not, strictly speaking, apply either abscessus or apostema to every suppurative inflammation, but only to those that were deep-seated, and of considerable extent; chiefly indeed to collections of pus consequent upon fevers, or some previous disorder of particular parts, especially abdominal diseases. This limitation is accurately drawn by Celsus immediately after his description of struma, furunculus, and phyma. "Sed cum omnes hi nihil nisi *minuti abscessus* sint, generale nomen trahit *latius vitium ad suppurationem spectans.* Idque fere fit aut post febres, aut post ordoles partis alicujus, maximeque eos qui ventrem infestarunt." The term *abscess* however, which was colloquially used in a loose sense in the time of Celsus, is used so much more loosely in our own day, that it is impossible to recal it to its precise and original meaning. Yet APOSTEMA has not been thus generalized; and it is here, therefore, laid hold of and restrained to the signification expressed in the generic definition; after the authority, indeed, of Sauvages, who has employed it with the same limitation.

How differs from abscess.

Apostema here recalled to its earlier meaning.

The genus apostema in the arrangement before us will be found to include five species: the first of which is com-

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* Lib. cap. xxviii. § 11.

GEN. I. Apostema. Aposteme.

mon to most fleshy parts, and possesses a common character; while the remaining four are distinguished by some peculiarity of character, produced by a peculiarity of situation:

1.	APOSTEMA COMMUNE.	COMMON APOSTEME.
2.	———— PORTICUM.	PSOAS ABSCESS.
3.	———— HEPATICUM.	ABSCESS OF THE LIVER.
4.	———— EMPYEMA.	LODGMENT OF MATTER IN THE CHEST.
5.	———— VOMICA.	VOMICA.

SPECIES I.

APOSTEMA COMMUNE.

Common Aposteme.

INFLAMMATION COMMON TO THE FLESHY PARTS: PAIN OBTUSE: TUMOUR SPREADING EXTERNALLY: TENDER TO THE TOUCH: PUS LAUDABLE: READILY INCREASING WHEN OPENED.

GEN. I. SPEC. I.

Sometimes takes a wide range.

IN whatever part an aposteme is seated, it will sometimes spread to a wonderful extent, and be loaded with a prodigious weight of pus. M. Balme gives us an account of an abscess that extended through the whole parietes of the chest and abdomen on one side, and reached from the scapula to the thigh *; and Hildanus was present, when, upon opening a patient after death, twelve pints of pus were found effused from a visceral aposteme into the cavity of the abdomen †.

Whence this effect.

In all such cases the first stage of inflammation, that of adhesion, must have been overshot in the violence of

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* Journal de Medicine, &c. Tom. XVII.

† Cent. II. Obs. 57.

GEN. I. SPEC. I. Apostema commune. Common aposteme.

the action, or from some other cause, and the suppurative and ulcerative have commenced simultaneously from the first. For otherwise the coagulable, or as Mr. Hunter prefers to call it, the coagulat*ing* lymph thrown forth, as has been already explained, into the cellular membrane in the earliest stage of the inflammation, would have formed a boundary wall by the production of new vessels and reticulations, much nearer to the salient point of the inflammatory action, and confined the secretion of pus to a much narrower limit.

Adhesive inflammation designed to narrow the limits of aposteme.

The secretion of coagulable lymph, and the reticulate adhesion and formation of new vessels which issue from it, is indeed designed, as has been explained already, to prevent the necessity of the suppurative and ulcerative stages of inflammation; and the natural cure of the adhesive stage is by resolution.

Suppurative inflammation only follows where adhesion cannot produce a cure;

for the purpose of removing some dead or foreign substance.

When, therefore, an aposteme takes place in a healthy frame, or, in other words, when the inflammation passes into the two ensuing stages of the suppurative and ulcerative, and pus is formed, and a cavity scooped out for its reception, we are to take it for granted that the instinctive and remedial power of nature is incapable of producing a cure by the first intention; that some dead part or extrinsic substance is required to be removed, and that the two ensuing stages of inflammation are had recourse to for this purpose.

How such removal is accomplished.

In the formation, then, of an aposteme in a healthy constitution, we are to suppose that some part of the organ in which inflammation occurs, as for example, a piece of the muscle of an arm or a leg, is become dead, and an incumbrance to the living parts that surround it, instead if assisting in their office. In effecting, therefore, the important object of a cure, it is obvious that two distinct actions are necessary; the dead part must be carried off, and its part must be filled up by a substitute of new matter possessing the precise properties of the old. And in the process which takes place to accomplish these two purposes, we meet with another

Two distinct actions necessary, so as to carry off the dead part and produce a substitute.

GEN. I. SPEC. I. Apostema commune. Common aposteme. Striking proof of instinctive power.

clear and striking instance of that wonderful instinctive power which pervades every portion, both of the animal and the vegetable world, and which is perpetually stimulating them to a repair of whatever evils they may encounter, by the most skilful and definite methods.

These effects how accomplished.

In order to comply with this double demand of carrying off the dead matter, and of providing a substitute of new, the absorbent and the secernent vessels in the living substance that immediately surrounds that which requires to be removed, commence equally, and nearly at the same time, a new mode and a new degree of action. A boundary line is first instinctively drawn between the dead and useless, and the living and active parts; and the latter retract and separate themselves from the former, as though they had been skilfully divided by a knife. This process being completed, the mouths of the surrounding absorbent vessels set to work with new and increased power, and imbibe and carry off whatever the material may be of which the dead part consists, whether fat, muscle, ligament, cartilage, or bone; the whole is equally sucked up and taken away, and a hollow is produced where the dead substance existed.

Action of the surrounding absorbents.

While this is proceeding, the mouths of the corresponding secernent vessels from the first, and perhaps somewhat antecedently, commence a similar increase and newness of action; and, instead of the usual fluid, pour forth into the hollow a soft, bland, creamy, and inodorous material, which progressively fills up the cavity, presses gradually against the superincumbent skin, in the gentlest manner possible distends and attenuates it, and at length bursts it, and exposes the interior to the operation of the gasses of the atmosphere. From this period the process of incarnation commences: granulations of new living matter pullulate on every side, assimilating themselves to the nature of the different substances that are lost, till the hollow is sufficiently filled up, and the organization completely regenerated.

Action of the surrounding secernents.

On the bursting of an abscess externally, we occasionally find that a portion of the dead matter still remains,

Gen. I. Spec. I. Apostema commune. Common aposteme.

Sometimes a part of the dead matter remains after the abscess has burst.

which is, afterwards, gradually sloughed away, or is thrown off by a separation at its base. This is particularly the case in furuncles or boils; and still more strikingly so in large abscesses that include bones or the tendinous parts of muscles which are more difficult of absorption, though even these are sometimes absorbed, and completely carried off.

Process of absorption of dead matter.

The attenuation of the superincumbent integuments of an abscess appears to be produced by the stimulus of distension occasioned by the pressure of the accumulating pus. And it is to the same stimulus that Mr. Hunter resolves the absorption of the dead matter itself, conceiving that for this purpose the secretion of the pus commences somewhat earlier than the absorbent process.

Commencement of suppuration how evidenced.

The formation of pus, and consequently the existence of an aposteme, is evidenced by a cessation of the pain of distension, which gives way to a throbbing pain, synchronous with the dilation of the arteries; and by irregular shiverings, and sometimes rigor. After a few days a weight is felt in the part, the throbbing pain itself subsides, the tumour becomes soft, and, if it point sufficiently towards the surface, fluctuates to the touch.

Economy of suppuration, by whom discovered.

Explanation chiefly due to Hewson.

How accounted for antecedently.

There is some doubt to whom we are indebted for the first insight into this wonderful process; for it was taught at the same time, or nearly so, on the continent by De Haen, Plenciz, and Schreder, and in our own country by Hewson, Hunter, Home, Cruikshank, and Professor Morgan: but upon the whole, Mr. Hewson appears to have taken the lead, and the rest to have followed closely in his steps. Antecedently to which period, pus, instead of being a peculiar secretion, was supposed to consist in a dissolution of the blood-vessels, nerves, muscles, and other solids, in the ordinary exhaling fluid when augmented by effusion; or in a conversion of the serum, thrown forth on the occasion, into the new matter, by a change effected in its gluten during its state of stagnation: the first of which hypotheses

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was that of Boerhaave*, Platner†, and almost all who practised antecedently to their time; and the second that of M. Gaber‡, and Sir John Pringle§.

These conjectures were ingenious, but they were nothing more; and their errors are sufficiently pointed out in the 'Experimental Inquiries' of Mr. Hewson, to whom physiology, and especially the science of morbid anatomy, is almost as much indebted as to any person whatever. He travelled with a comprehensive mind, and a zealous and indefatigable step, in what was at that time new and untried ground; and though he was mistaken in a few points, he correctly explored much, and, by the course he laid down, indicated to his successors the truest methods both of confirming his facts and correcting his misconceptions.

Pus proved by Hewson to be a secretion.

He proved decidedly that pus is a peculiar secretion, and that it is often, indeed, secreted where there is no abscess or breach of surface: and he ingeniously accounted for its production by supposing it to be formed out of the coagulable lymph by a new power given to the secernent vessels in consequence of the inflammatory action. "And if pus," says he, "in these cases, is produced merely by a secretion, so likewise it would seem probable, that even in abscesses, where there is a loss of substance, it is not the melting down of the solids that gives rise to the pus, but the pus being secreted into the cellular membrane from its pressure, and from other causes, *deadens the solids, and then dissolves*|| them."

His view of the subject in one point erroneous.

This idea of the solids contained in an abscess being deadened and dissolved by the pus which surrounds them, in the ordinary sense of the expression, (for in

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* Aphor. 387.

† Instit. Chirurg. Sect. LIV.

‡ Acta Taurinensia, Vol. II.

§ Treat. on the Diseases of the Army, app.

|| Experimental Inquiries, Part II. p. 118.

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one sense, as will appear hereafter, they may be said to be dissolved,) was one of the erroneous opinions of Mr. Hewson to which I have just alluded; and originated from too close an adherence to the earlier, and still more mistaken hypotheses we have just noticed.

This point corrected and the whole explanation improved by Hunter.

And hence, with all his ingenuity, Mr. Hewson advanced not much more than half way in explaining the entire economy of suppurative inflammation. It remained for the exploring eye and commanding genius of Mr. Hunter to penetrate through a considerable portion of the remaining half of this curious process, and to prove that the solid parts contained in the area of an abscess, instead of being deadened by the pressure of the surrounding pus, are dead before-hand, destroyed indeed by the violence of the accident, or of the inflammation; and that, instead of being merely dissolved in the circumambient pus, they are absorbed and carried off by a new and increased action of the circumambient absorbents; thus showing that even ulceration itself, when of a healthy kind, is only another link in the restorative chain of nature made use of on this occasion.

Ulceration as well as suppuration a link in the restorative chain.

The greater part of this nice fabrication is rendered so clear in Mr. Hunter's admirable work on inflammation, and his arguments and his facts have been so fully confirmed, and so abundantly exemplified by later physiologists, and particularly by Mr. Cruikshank in his valuable treatise on the absorbents, as to remove every doubt upon the subject in the minds of the great body of the profession. And it is hence not a little surprising, that Dr. Cullen's Practice of Physic should be still printed and circulated, and more than this, be still employed as a text-book (as I am told it is), in many of the most celebrated schools of the present day, with the old, mistaken, and exploded hypothesis of the formation of pus out of secreted serum, advanced as a true and genuine doctrine *, without the slightest hint of any newer or more satisfactory explanation of the subject.

Confirmed by the observations of Cruikshank.

The old and erroneous hypotheses still current in several modern works.

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* Book II. Ch. I. Sect. CCL.

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It is still more surprising, that the same antiquated doctrine should be taught in the latest editions of Mr. B. Bell's valuable treatise on ulcers *: and most of all, (to the present author, at least, most of all,) that his friend Dr. Parr, with all the light of his contemporaries before him, should have offered it as his own opinion, in his elaborate and upon the whole very excellent Medical Dictionary; in which he tells us, after M. Gaber, that the pus of an abscess "consists of the *substance of the vessels, and of the cellular membrane* dissolved in the serum."

That pus is a distinct secretion, notorious in the present day.

That pus, instead of being a mere solution of dead animal matter, is a distinct and peculiar secretion, is now known to most practitioners from personal observation; who must have witnessed it repeatedly in situations in which there has been no ulceration or breach of structure, and consequently where there could be no dead animal matter to dissolve.

Often found where it can be nothing else.

It was noticed in this form by De Haen so far back as the middle of last century; and was pointed out by Mr. Hewson as frequently found, on dissections, on the surface of the pleura, the peritoneum, the pericardium, in a perfectly genuine state. A very decided case, to which both Dr. Hunter and Mr. J. Hunter were witnesses, was published by Mr. Samuel Sharp about the same time that De Haen first brought the subject before the public.

Still further illustrated.

Nothing is more common or more copious than the secretion of pus without ulceration in the first stage of purulent ophthalmy, and in purulent inflammation of the mucous membrane of the glans penis; and I remember having attended about twelve years since a gentleman in Bedford Row, who had irritated the urethra by improperly introducing a bougie into the bladder, and about three days afterwards discharged with his water not less than half a pint of pure pus, which separated itself from the water, and subsided, and thus gave me an opportunity of

Singular discharge of pus from the urethra.

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* Part I. Sect. iii.

examining it minutely. I requested Mr. Cline's attention to this case, and we saw not the slightest reason for suspecting any ulceration whatever.

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Distinctive character of genuine pus.

Genuine pus is peculiarly distinguished by its consisting of white globules swimming in a fluid, which to the eye has the appearance of serum, but possesses characters of its own, equally different from those of serum and of every other secretion we are acquainted with; and which render it coagulable in a saturated solution of muriate of ammonia, which is its specific test. Pus, however, is not globular at its first formation, but a transparent fluid of a consistence in some sort resembling jelly; the globules are produced while it lies on the surface of the sore, usually, when not exposed to external air, in about fifteen minutes after its secernment. The perfection of pus seems to depend upon the large proportion which its globules bear to its other parts. It is specifically heavier than water, and approaches nearly to that of blood. It has a sweetish, mawkish taste, (apparently from its containing sugar,) very different from that of most other secretions. After putrefaction it evinces an acid. Dr. Bruggmans, who has analyzed it with much care, asserts that it has an acid also before putrefaction; but this has been denied by Sir Everard Horne*. For a further account of its chemical properties, the reader may consult Dr. Pearson's elaborate paper on this subject in the Philosophical Transactions †.

Granulation and incarnation.

In the process of the natural cure of an aposteme, we find that the stage of granulation, and consequently of incarnation, immediately succeeds that of ulceration or the removal of the dead matter. "The vessels," says Mr. Hunter, "forming themselves into a certain structure which fits them for secreting pus, it is so ordered that the same structure also fits them for producing granulations; and thus these two processes are concomitant

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* Dissertation on the Properties of Pus, p. 20.

† Vol. 1809, p. 313. See also a further description under Marasmus Phthisis in the sequel of the present volume.

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effects of the same cause, which cause is a peculiar organization superadded to the vessels of the part*."

Change of organization hypothetical, but perhaps correct.

The idea of a change of organization is hypothetical, but ingenious, and perhaps correct. Change of action and change of effect we know; but at the rest we can at present only give a guess, and must leave it to future times to ascertain.

Use of granulation.

How it takes place,

The obvious design of granulation or incarnation, as it is often called, is that of repairing the loss the parts have sustained by the injury done: it is that of producing new flesh. Granulation, like vegetation, takes place from the centre below, in a direction upwards towards the skin; and hence exactly contrary to the course of ulceration, which always begins in the superior part of an abscess. The process commonly succeeds best upon exposure to the air, or at least after an opening externally; though there are instances of its having occurred where there has been no exposure whatever. The granulating pullulations, according to Mr. Hunter's explanation, consist of exudations of coagulating lymph from the vessels. He conceives it probable not only that the old vessels extend into these pullulations and become elongated, but that new vessels also form in them, and, like the old, still continue to secrete pus. The granulations, as they become formed, mutually and readily unite; inosculation or the attraction of cohesion is established between them; and their vessels thus joined are transformed from secreting into circulating tubes. Immediately upon their formation, cicatrization seems to be in view. The parts which had receded, in consequence of a breach being made into them, begin now from their natural elasticity, and probably from muscular contraction, to be brought together by the new-created substance; and the contraction of the sore proves a sign that cicatrization is speedily about to follow. This contraction takes place in every point, but principally from edge to edge, which

and what the pullulations consist of, according to Mr. Hunter.

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* On Inflammation.—Of Pus, p. 433.

brings the circumference of the sore towards the centre: so that the exposed surface becomes smaller and smaller, even before there is any formation of a new skin.

Two parts of the restorative process that still require explanation.

There are two parts, at least, of this wonderful economy that still demand explanation. The first is the real use of the pus after it is secreted; and the second, the means by which the absorbents carry off the dead matter. The same explanation may perhaps apply to both.

The use of the pus:

That pus is a peculiar secretion distinguished by peculiar properties, and not a solution of the dead animal matter which it is the design of nature to remove, has already been sufficiently shown. "But I am apt to believe," says Mr. Hunter, "that we are not yet well, or perhaps not at all, acquainted with its use, for it is common to all sores; takes place in the most perfect degree in those sores which may be said to be the most healthy, and especially in those where the constitution is most healthy*." It forms, indeed, an exit to foreign bodies: is supposed by many to carry off humours from the constitution, or convert general into local complaints; and by others to act as a preventive of numerous diseases. Yet all these services, even admitting them to exist, are but secondary, and the final intention still remains to be accounted for.

and how the dead matter becomes fitted for absorption.

In like manner, since the dead matter of an aposteme does not constitute the pus that is found in it, and hence can only be carried off by absorption, we have yet also to learn by what means it becomes prepared for an entrance into the delicate mouths of the absorbent vessels. There is no small difficulty in conceiving how these very minute mouths can apply themselves with sufficient activity to the various tough and hard substances they have to remove, as tendon and bone, when in close contact with them; but, as soon as the dead part becomes separated from the living, they are often no longer in close contact with them, except at the base, where there is little or no absorption at all; and in many cases, as in boils, carbuncles,

These difficulties explained.

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* On Blood, &c. Part II. Ch. V. p. 436.

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and other imperfectly suppurating tumours, possessing cores or tenacious sloughs, are at a considerable distance from them, with the entire body of the contained pus placed intermediately in the hollow.

Pus possesses a solvent power: yet not of the kind supposed formerly: and hence, one important use of this fluid.

In the last case it seems impossible for them to act except through the medium of the pus; in reality except through a solvent power possessed by the pus and exercised upon the matter to be removed. And if such be the nature of the action in this case, it is doubtless the nature of the action in all other cases: and hence we arrive at one immediate and direct use of pus, which is, that of becoming a solvent of the dead animal matter that requires to be carried off: not, indeed, by converting the whole substance at once into a fluid mass, and still less into a fluid mass of its own nature, as supposed by Sir John Pringle, but only the surface of the substance to which it is applied; and which hereby is rendered fit for absorption, carried forward to the mouths of the imbibing vessels, and absorbed accordingly. And as the same power is exerted in succession upon every fresh surface of the dead matter that becomes exposed to its action, the whole is at length carried away, and a cavity produced where before was solid substance.

How far Hewson's view correct.

That pus first kills and then dissolves the organized matter of an abscess was, as we have already seen, the opinion of Mr. Hewson. In the first part of this opinion he was completely mistaken; for, as we have already observed, the organized matter is dead before the process of suppuration even commences; in the second, he seems to a certain extent to have been correct, though he still erred in supposing the dead substance to be melted down into its own nature, and was unacquainted with the important process of its absorption. But in advancing his own full and more elaborate hypothesis against the mistakes of Mr. Hewson's, Mr. Hunter ran into the opposite extreme; and contended, that pus is not designed to be a solvent at all, and that animal substances are decomposed in it with very great difficulty: thus leaving us totally at a loss to account for its use; and equally so to

How far Hunter's view erroneous.

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explain the manner in which the mouths of the absorbents of an abscess can operate upon or even, in many instances, get at the material they are to remove.

Hunter's appeal to experiments.

Mr. Hunter, however, with the candour that so peculiarly belonged to him, made this question a subject of experiment, and the experiment, as he conceived, fully established his pre-conceived opinion: and gave proof that the pus of an abscess does not act as a solvent. This conclusion of his only shows how difficult it is for the most honourable mind, when biassed by a favourite hypothesis, to weigh with an even hand the evidence that lies before it. "To see," says he, "how far the idea was just, that dead animal matter was dissolved by pus, I put it to the trial of experiment, because I could put a piece of dead animal matter of a given weight into an abscess, and which could at stated times be weighed. To make it still more satisfactory, a similar piece was put into water, kept to nearly the same heat. They both lost in weight; but *that in the abscess most.* And there was also a difference in the manner, for that in the water *became soonest putrid* *." There is nothing in animal chemistry, strictly so called, that decomposes animal substances so rapidly as putrefaction. And yet in the present instance the pus of an abscess evinced a more active decomposing power than the fluid of water, though aided by the accessions of putrefaction. It is not very wonderful that Mr. Hunter, though regarding this result as in his favour, should not be disposed to "rely on its accuracy," and he refers us, therefore, for a further proof to a more competent experiment of Mr. (now Sir Everard) Home, which consisted in immersing a portion of muscle weighing exactly one drachm, "in the matter of a compound fracture in the arm of a living man, and a similar portion into some of the same matter out of the body; also a third portion into fluid calf's-foot jelly, in which the animal substance was pure, having neither wine nor

The experiment apparently at variance with his conclusion.

Experiment of Home.

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* On Blood, &c. Part II. Ch. V. p. 419.

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vegetables mixed with it. These portions of muscle were taken out every twenty-four hours, washed in water, weighed, and returned again."

This experiment alike at variance with Hunter's conclusion.

The result of this experiment is still more in favour of the solvent power of pus than the preceding. At the end of forty-eight hours there was indeed no great difference, as the muscle in the abscess was reduced to thirty-eight grains, and that in the other two fluids to thirty-six. But from this period to ninety-six hours the muscle in the jelly continued the same, while that in the abscess was reduced to twenty-five grains; and that in the exposed pus dissolved *; the power of putrefaction, as Mr. Hunter observes, being in this last case superadded to that of the pus itself.

We hardly stand in need of other experiments. The solvent power of pus above that of water, of animal jelly, and hence we may conclude of animal fluids in general, is sufficiently established by the very evidence that is advanced in opposition to this power. And it should hence seem that one at least of the direct uses of pus is to reduce, surface after surface, the dead animal matter which is exposed to its action, to that state in which it may be rendered fit for absorption, and at the same time conveyed to the mouths of the absorbent vessels.

Second use of pus to assist in the process of granulation.

But I have for many years thought that it has also another equally important use; that, I mean, of assisting in the process of granulation; and a late article of Sir Everard Home in the Philosophical Transactions, containing the observations of Mr. Bauer upon the germination of plants, and his application of those observations to the growth of the new vessels in animals †, seems, if not to have settled the question, at least to have very considerably favoured this view of it.

Having sown a quantity of wheat for the purpose of

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[*] Dissertation on the Properties of Pus, p. 32.

[†] Phil. Trans. 1818, p. 180-194.

GEN. I. SPEC. I. Apostema commune. Common aposteme. Confirmed by experiments of Bauer.

noticing the changes which occurred from the first, Mr. Bauer took up every day several grains or plants for examination till they were ripe; and in the course of his attention, was much struck with the rapid increase of the tubular hair of the root of a young plant of wheat in its earliest stage of vegetation; and, fixing his view entirely to that part of the plant, he observed small pustules of a slimy substance arising under the epidermis in the surface of the young root; and in a few seconds a small bubble of gass bursting from the root into the slimy matter which it extended in a moment to the length the hair was to acquire; when the slimy matter surrounding the gass immediately coagulated and formed a canal. He repeated his observations on another plant, whose pubescence consisted of a jointed hair, and observed the same effect; a bubble issued from the young stalk, and extended the slimy mucus to a short distance, forming the first joint, which immediately coagulated and became transparent; and at its extremity a new pustule of the same slimy matter accumulated, into which, in a short time, the gass from the first joint rushed: and thus, in a moment, a second joint was formed. In the same manner, he observed, the formation of the hairs of ten or twelve joints take place.

And Home.

Impressed with the importance of these facts, Sir Everard Home immediately began to inquire how far the same course is pursued in the production of new animal matter. He first ascertained by experiments of Mr. Brande, already noticed in the proem to the second class of this work *, that blood in a state of circulation contains a considerable proportion of air, which, in the process of its coagulating, escapes in the form of carbonic acid gass, and in its escape produces bubbles as in the slime of plants; and that it escapes equally from the coagulating blood of veins and arteries, from effused serum and from pus. And in pursuing the subject he

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* Vol. I. 448.

Gen. I. Spec. I. Apostema commune. Common aposteme.

found that, on the coagulation of a drop of blood placed in the field of a microscope, an intestine motion occurred, and a disengagement of a something took place in different parts of the coagulum; beginning to show itself where the greatest number of globules were collected, and from thence passing in every direction with considerable rapidity through the serum, but not at all interfering with the globules themselves, which had all discharged their colouring matter. Wherever this extricated colouring matter was carried, a net-work immediately formed, anastomosing with itself on every side through every part of the coagulum. When the parts became dry, the appearance of a net-work remained unaltered. In some instances bubbles were seen to burst through the upper surface of the coagulum; this however did not prevent the ramifications that have been described from taking place. "When this happens," continues Sir Everard, "in living animal bodies, from whatever cause, and in whatever circumstances it takes place, no difficulty remains in accounting for its afterwards becoming vascular, since all that is necessary for this purpose is the red-blood being received into the channels of which this net-work is formed." He next proceeded to the subject immediately before us. "As the globules of pus," says he, "are similar to those of blood, I made experiments upon the fluid in which they are suspended, and found inspissation produce the same effect on it as coagulation does on the other; that a similar net-work is formed and apparently by the same means, since if pus be deprived of its carbonic acid gass, (of which it contains a large quantity,) by exhaustion in the air-pump, no such net-work takes place."

Other experiments necessary: but the present nearly decisive.

Additional experiments are still necessary upon this interesting subject; but so far as they go, they seem very clearly to indicate the important and double use to which pus is subservient; that it acts as a solvent upon the dead matter, preparing it for absorption, and as a fomes for granulation and the production of new vessels.

Nor let it be observed in opposition to this conclusion that we are thus endowing it with incongruous and contrary qualities; and that if it be erosive in the one instance it cannot be nutrient in the other; for the animal economy presents us with various examples of like effects, contrary indeed but not contradictory, produced by one and the same secretion on dead and on living matter, for which we need go no further than to the very common operation of the gastric juice; which, while the most powerful solvent of dead animal matter in the whole range of animal chemistry, is a healthy stimulant to the living stomach, and even to other living organs; and has successfully been applied externally for this purpose by surgeons, to weak and ill-conditioned ulcers, and employed by physicians as an internal tonic in cases of dyspepsy and cardialgia.

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No incongruity in these two qualities inhering in the same substance.

Illustrated by the qualities of gastric juice.

SPECIES II.

APOSTEMA PSOATICUM.

Psoas Abscess.

PAIN AND TENSION ABOUT THE LOINS, SHOOTING DOWN THE SPINE AND THIGHS; DIFFICULTY OF STANDING ERECT; FLUCTUATING ENLARGEMENT ALONG THE PSOAS MUSCLE; APEX OF THE TUMOUR IMMEDIATELY BELOW THE GROIN.

This is one of the most lamentable diseases we can ever be called upon to attend. It commences insidiously, and at the same time in parts so deeply seated as to render it very difficult to determine the place of its origin; and hence the psoas muscle itself, the cellular

Gen. I. Spec. II. Primary seat of the disease difficult to be determined.

Gen. I. Spec. II. Apostema psoaticum. Psoas abscess.

substance interposed between the peritoneum and the loins, the lymphatic glands near the receptaculum chyli, and the lumbal vertebræ have been pitched upon by different writers. It is probable that most of these have formed the primary seat of affection in different cases, and that the inflammation has subsequently spread to one or more of the other parts. The pain at first is by no means violent, and the patient thinks lightly of it; it is sometimes felt in the back rather lower than the region of the kidneys; and sometimes as low down as the thigh. From the deceptive manner of its attack, medical advice, and particularly a free use of purgatives and the lancet, which might have been of essential service at first, is fatally postponed; and the symptoms are regarded as those of an accidental strain. After the abcess is formed, however, the pain, in most cases, increases considerably; and the matter may be discharged into the cavity of the abdomen, where it would soon be fatal. On this account it obeys the law of instinct we had lately occasion to notice; follows, in most instances, the course of the psoas muscle, and points externally a little lower than the inguinal glands; or it passes down the thigh, where, however, it is apt to dissever the muscles and form sinuous abscesses. Sometimes, though rarely, the matter passes through the muscles of the back, and is discharged in the loins; and in a few instances it has been known to fall into the cavity of the back part of the pelvis. The abscess, therefore, is highly dangerous; since under the most fortunate circumstances it is so long in pointing externally, even if it should make any visible pointing at all, that the patient usually sinks under a hectic fever, produced by the local irritation. While in most cases, in which it has made a natural opening for itself, it has been found connected with so many deep sinuses, which cannot be followed up, that the same effect ensues.

Progress of the disease.

Abscess may discharge itself by different outlets.

Highly dangerous:

and often productive of fatal hectic.

No mode of medical treatment has been found productive of any good purpose; and the case has been, in a very early stage of the suppuration, given over to the

Medical treatment rarely of avail.

Gen. I. Spec. II. Apostema psoaticum. Psoas abscess.

Surgical treatment discrepant.

surgical practitioner. Yet even here different individuals have pursued different lines of conduct. Mr. Bell advises an early evacuation of the matter, lest the bones should become injured; while Mr. Abernethy apprehends less danger from its being suffered to remain, and at last evacuates it at different intervals, and by successive operations: by which means the cyst, in which the pus is principally lodged, may have an opportunity of contracting; and this, he thinks, it has a greater tendency to do than in abscesses where the inflammation is more violent. He is also attentive to close the opening the instant the matter is discharged, so as to prevent any increase of the inflammation by an access of air.

Suggestion as to the real cause of danger.

The real cause of danger does not seem to have been hitherto hit upon; but it may probably be referred to that tendency to a rapid spread of inflammation over their entire surface, which Mr. Hunter has shown to exist in all internal cavities, and the hazard of which is in proportion to the extent of the cavity; a subject already touched upon in the discussion of puerperal fever, and which we shall have other opportunities of illustrating as we proceed, particularly in some cases of varicose enlargement of the veins. Now in the disease before us we have not, it is true, any natural cavity, but we have an artificial cavity of long standing, and large extent, in a highly irritable state, and which is therefore peculiarly predisposed to run into all the fatal effects of large natural cavities, when injured or otherwise rendered imperfect. The author throws out this hint, however, for future and general consideration.

SPECIES III.

APOSTEMA HEPATIS.

Abscess of the Liver.

DIFFUSE PULSATING TUMOUR IN THE REGION OF THE LIVER; PRECEDED BY PAIN, A YELLOW COUNTENANCE AND SHIVERING.

Gen. I. Spec. III. Terminates variously.

This is also a very fatal disease; and usually terminates in one of the following ways:

Extensive absorption of the liver.

Firstly, The substance of the liver is gradually and almost entirely absorbed from long continued irritation: the melancholy accompaniments of which are a tedious icterical marasmus, hectic fever, great anxiety, and a sanious and fetid diarrhœa, which is the forerunner of death.

The aposteme may open into the cavity of the abdomen.

Secondly, The abscess breaks internally and discharges a sanious pus into the belly; by which means the rest of the viscera are affected; and the termination is marasmus, acites, and dissolution.

The pus may find a passage into the intestines.

Thirdly, The pus sometimes finds a passage into the biliary ducts, and thence into the intestines; from these it is occasionally thrown into the stomach and vomited in the form of a dark offensive material: but far more generally it is carried downward and produces a violent looseness. Acids and acescent medicines may here palliate for a time; but the issue is always fatal.

The aposteme may burst externally.

Fourthly, The enlarged liver becomes, in some cases, united by adhesive inflammation to the peritoneum, and the abscess opens externally; and, in this case, there is a chance of cure. The opening should be expedited by a caustic, or the knife; and the cure will greatly depend upon the nature of the fluid which is discharged.

Fifthly, There is reason to believe, that in a few rare

Gen. I. Spec. III. Apostema hepatis.

instances the matter is carried off by absorption, when a healthy granulation takes place, and a cure is completed without any opening. This termination is more reasonably to be expected in a constitution otherwise sound, and where the liver has not been weakened or rendered torpid by any former affection. It is hence rather to be looked for in a temperate than in a tropical climate, and in youth than in advanced life.

The pus may be carried off sometimes by absorption.

These cases may, indeed be regarded as sequels of hepatitis; though it is possible that pus may be thrown into the penicilli and biliary pores of the liver by a metastasis from some other organ, as it not unfrequently is into the tubules of the kidneys, and thence conveyed to the bladder. When the cure takes place without an opening, it is not always an easy matter to determine for a certainty that pus has actually been formed. But sometimes we can trace a fluctuation; and at other times the subsidence of the tension, pain, and pulse, after one or two severe shivering fits, may be regarded as sufficient indications. In a case of this kind that occured to me in a young gentleman of about thirteen years of age, the shivering was so considerable as to make the teeth chatter; and within eight-and-forty hours the pulse sunk from a hundred-and-forty to a hundred-and twenty; and the abdominal tension and tenderness were considerably abated; as was also the distressing cough with which he had almost perpetually been harrassed for some weeks. He was put upon a tonic plan of columbo and sulphuric acid immediately after this change, and recovered gradually.

Often a sequel of hepatitis.

Not always easy to detect pus when no opening.

Yet the symptoms often sufficient to decide.

SPECIES IV.

APOSTEMA EMPYEMA.

Lodgement of Matter in the Chest.

FIXT PAIN IN THE CHEST; BREATHING LABORIOUS, BUT EASIEST IN AN ERECT POSITION; DIFFICULT DECUMBITURE ON THE SOUND SIDE; FLUCTUATING ENLARGEMENT ON THE SIDE AFFECTED; DRY, TICKLING COUGH.

Gen. I. Spec. IV. Symptoms noticed by Hippocrates.

Not always a sequel of pneumonia as presumed by Cullen.

To the symptoms enumerated in the above definition Hippocrates adds*, edema of the feet, hollowness of the eyes, and a gurgling sound on shaking the shoulder. Of these additional signs, the first two belong rather to the hectic fever that generally accompanies empyema, than to the disease itself. The last has sometimes been met with in modern times†. Dr. Cullen regards empyema as a mere sequel of pneumonia, which with him includes inflammation of the pleura, as well as of the lungs, but as it may take place from inflammation of the mediastinum, pericardium, or diaphragm, to say nothing of that from external injuries, and as it is often doubtful what particular organ is directly injured, a separate species seems decidedly called for. Goekel, indeed, describes a case in which the pericardium was affected in connexion with the right lung, and to such an extent that both were totally consumed.

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* Περι Παθων, p. 476, 496.

† Trecourt Memoires de Chirugie, &c.

Pus not always to be referred to any particular organ.

In some instances, there is no organ to which the pus can be referred as a process of ulceration; and to such an affection Mr. Hewson has several references. "The cavities of the pleura, pericardium, &c." says he, "are sometimes observed to contain considerable quantities of pus without the least marks of ulceration. In one patient I found three pints of pure pus in the pericardium without any ulcer either on that membrane or on the heart. In another the cavity of the pleura of the right side was distended with a pus that smelt more like whey than a putrid fluid, and the lungs were compressed into a very small compass: but there was no appearance of ulcer or erosion either on these organs or on the pleura; but only under the pus was a thin crust of coagulable lymph." We have already observed upon this secretion of imperfect pus, and it is not necessary to explain it any farther.

Singular case related by Darwin.

Dr. Darwin relates a singular case of empyema, in which the pus seems in like manner to have been produced without ulceration, though he ascribes it indirectly to an abscess in the lungs. "A servant man after a violent peripneumony, was seized with symptoms of empyema, and it was determined, after some time, to perform the operation; this was explained to him; and the usual means were employed by his friends to encourage him, by advising him 'not to be afraid.' By which good advice he conceived so much fear that he ran away early next morning, and returned in about a week quite well."

Hence internal medicines may at times be useful.

This should indicate that something may at times be accomplished by internal medicines, though no plan has hitherto succeeded that has been devised by professional skill.

Other instances of metastasis.

Nor is the present the only case on record in which the contained fluid has disappeared by metastasis. It has

Gen. I. Spec. IV. Apostema Empyema. Lodgement of matter in the chest.

passed off by the intestinal canal[*], by the bladder[†], and by the vagina[‡], in the form of pus; and is said in one instance to have vanished on the eruption of a scabies[§]. It has has also frequently passed off, by an opening formed by nature, and the patient has recovered his usual health. This opening has commonly been between the ribs, most usually between the third and fourth, but in one instance we find the abscess pointing and bursting under the scapula[‖]. Morgagni has recorded a singular case of a double empyema, a lodgement of pus being formed on both sides[¶]. And Balme a still more extraordinary case, in which the pus entered the cellular membrane and spread over almost the whole trunk[**].

Double empyema.

Ramifying over the entire trunk.

Advice of Hippocrates in perforating where the opening should take place.

When the fluid is discharged by paracentesis, Hippocrates urges repeatedly upon the surgeon to evacuate it only by degrees[††]; and Borelli gives a case in which the patient seems to have sunk and been lost under a sudden evacuation alone[‡‡]. There has also been no small discussion concerning the part of the thorax to which the scalpel may be most advantageously applied. David, in his prize dissertation, advises near the sternum[§§]; Mr. Sharp between the sixth and seventh rib[‖‖]; Mr. Bell wherever the pain or fluctuation may direct[¶¶].

Warner's success and mode of practice.

Mr. Warner, whose success made it many years ago a favourite operation in our own country, seems to have been of Mr. Bell's opinion, and varied the point of opening according to the nature of the case. And so

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[*] Kelner, Diss. de Empyemate. Helm. 1670. Marchetti, Obs. 82. 89.

[†] Buchner, Diss. sistens solutionem Empyematis per mictionem purulentam. Hal. 1762. N. Act. Nat. Cur. Vol. I. Obs. 5.

[‡] Schlichting, Phil. Trans. Vol. XLII. p. 70.

[§] Hautesierk, Recueil. II. p. 239.

[‖] Hurten, Diss. de Empyemate. Argeat. 1679.

[¶] De Sed. et Caus. Morb. Ep. XXII. Art. 13.

[**] Journ. de Medicine, Tom. LXVI. p. 244.

[††] Περι Νουσων. II. p. 476. l. 42. Περι των ἐνθος Παθων, p. 536. l. 15.

[‡‡] Cent. I. Obs. 72.

[§§] Mem. pour le Prix de l'Academie, X.

[‖‖] Critical Enquiry, &c. Chap. VI.

[¶¶] Surgery, Vol. II. 390.

Evacuated the whole of the contained pus at once.

little danger did he apprehend from the use of the scalpel on any occasion, that he not only evacuated in all instances the whole of the matter at once, but in one or two instances operated, where there was neither a polarized pain, nor fluctuation, nor visible discolouration, nor any external sign whatever, to direct him to one part rather than to another, or even to determine the real nature of the disease; otherwise than from the specific symptoms laid down in the preceding definition.

Usual mode of treatment.

In Mr. Warner's cases about twenty ounces of pus formed the average of discharge at the time of the perforation*: the patients usually found instant relief; the pain, cough, and quickness of pulse diminishing, and the breathing becoming easier. He dressed the wound with a sponge-tent till there was no longer any discharge, and afterwards superficially; and in about six weeks the patients were discharged cured. In this case it is perhaps more necessary to keep the wound open than in any other operation, since, till the ulcerated surface of the interior is completely healed, the secreted pus is apt to accumulate, and the operation must be renewed. Tents of all kinds are very properly exploded in most cases in the present day; but Mr. Bell has judiciously observed that in the paracentesis the old fashioned practice ought still to prevail†.

Singular case by Hawthorne.

Dr. G. Hawthorn, has given an instance of this disease that for its severity and danger, and particularly for its successful issue, is well worth recording‡. The patient was thirty years of age, and the disease had been brought on by exposure to damp night-air in a state of intoxication. He suffered greatly from quickness of pulse, incessant cough, oppression, and dread of suffocation. A distinct

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* See Phil. Trans. Vol. XLVII. XLVIII. LI. as also his works in their collected form.

† Surgery Vol. II. ch. XXII. Sec. IV.

‡ Edin. Med. and Surg. Journ. No. LXI. p. 513.

Gen. I. Spec. IV. Apostema Empyema. Lodgement of matter in the chest.

fluctuation was perceived in about three weeks from the attack; shortly after which he was a little relieved by a discharge of purulent matter effused into the bronchial cells, and expectorated to the extraordinary amount of five or six pounds daily, for many days in succession, a fluid of an intolerably offensive smell, and putrid appearance. He continued, however, to grow worse and weaker; his feet and legs swelled; his countenance was ghastly and he had colliquative sweats. About twelve weeks from the attack the operation was performed, nearly twenty pounds of pus were discharged on the first day and night; and he gradually recovered.

Riedlin operated with success twice on the same person*.

Matter discharged of various appearances and qualities.

The matter when discharged or examined on dissection has been found, as may be easily supposed, of very different consistences; sometimes pure pus, sometimes cheesy, and sometimes gelatinous. And the mischief to the interior of the chest has in some cases been very great. Several of the ribs have been found carious †; the lung on the affected side totally eroded ‡; and in one case the pericardium destroyed as well as the lung §.

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* Lin. Med. Ann. v. Obs. 30.

† Heuermann, Vermichta Bemenhungen, II. p. 217.

‡ Kelner, Diss. de Empyemate. Helmst. 1670.

§ Goeckel, Gallicinium Medico-pract.

SPECIES V.

APOSTEMA VOMICA.

Vomica.

DERANGED FUNCTION OF A THORACIC OR ABDOMINAL ORGAN; SUCCEEDED BY A COPIOUS DISCHARGE OF PUS INTO SOME PART OF THE ALIMENTARY CHANNEL; AND ITS EVACUATION BY THE MOUTH OR ANUS.

GEN. I. SPEC. V.

Comprehensive use of the term by Celsus, here copied.

THE specific term is a derivative from the Latin *vomo*, "to eject," especially from the stomach, but not exclusively so; and hence, on the present occasion, it is used in the comprehensive sense in which it is employed by Celsus, who applies it to a bursting of pus from the liver, or any other large internal organ, as well as the lungs*. Sauvages follows Celsus in this interpretation. Boerhaave and Cullen confine vomica to the lungs, and this in a more restrained sense than most writers; for they limit it to what has been called, though with no great accuracy *occult vomicæ*, "vomicæ clausæ." Linnéus and Vogel, on the contrary, while they confine the term to the lungs, explain it by *open vomicæ* "vomicæ apertæ," in which the pus is thrown forth profusely and suddenly. One termination of the hepatic aposteme may be regarded as a variety of this species, for, as we have observed, it sometimes issues in a discharge of pus by the mouth or rectum. Wherever it occurs, it appears to consist in a conglobate gland, first enlarged by a strumous congestion, and afterwards slowly and often imperfectly suppurating. Vomicæ vary in size, from the diameter of

Employed in a more restrained sense by Boerhaave and Cullen.

And still differently by Linnéus and Vogel.

May be related to the hepatic aposteme.

Vomica originates in a conglobate gland.

Varies in size.

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* De Medicin. Lib. IV. Cap. viii.

Gen. I. Spec. V. Apostema Vomica. Vomica.

a millet seed to that of an orange. The smallest rarely contain any fluid, and sometimes not even a cavity; but they are often highly irritable, and maintain a very considerable degree of hectic fever. When ulceration has taken place, and pus is secreted, the irritability frequently subsides; the pulse improves, the febrile exacerbations are less frequent and violent, and the patient flatters himself he is recovering. The vomica at length bursts and disabuses him; he sinks gradually from the quantity of the daily discharge, and the confirmed hectic; or, if the disease be seated in the lungs, and the cavity extensive, he may be suffocated by the volume of pus that overwhelms the trachea.

Patient sometimes flattered into a false hope of recovery.

Sometimes suddenly suffocated.

Singular case of cure.

Bartholine gives a singular case of an occult vomica of the lungs, that, accompanied with an asthma, produced great emaciation; but was fortunately cured by the wound of a sword, the point of which passed between the ribs and opened the sac. A considerable flow of pus followed, and the patient recovered gradually from the time of the accident*.

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* Hist. Anat. xiv. Cent. 6.

GENUS II.

PHLEGMONE.

Phlegmon.

SUPPURATIVE, CUTANEOUS TUMOUR; TENSIVE; GLABROUS; PAINFUL; AT LENGTH FLUCTUATING, AND BURSTING SPONTANEOUSLY; THE PUS UNIFORM AND GENUINE.

Gen. II.
General character of plegmon.

Under the last genus we took a general survey of the process and economy of suppuration, and noticed many of the most extensive and dangerous forms in which suppuration ever presents itself. We are now advancing to inflammatory affections, consisting of tumours of small extent, and either entirely confined to the integuments, or dipping but a little way below them.

The term phlegmon, from φλέγω, "inflammo," was used among the Greeks for inflammation generally. It has long since, however, been employed in a far more limited sense by medical writers of perhaps every school, though few of them have given a very clear definition of the exact sense in which they have intended to use it; or perhaps have formed such a sense in their own minds. Thus Dr. Cullen makes it comprise a multitude of tumours or tubercles of different degrees of inflammation, some suppurative, some unsuppurative, some serous, some callous, some fleshy, some bony; as boil, minute pimple, stye, stone-pock, abscess of the breast, and spina ventosa, or carious bone; with many others altogether as discrepant; while by Sauvages it is limited, and far more correctly, to spheroidal tumours, possessing redness, heat, tension, violent throbbing pain, spontaneously suppurating. Not indeed essentially different from

In what sense used by the Greeks;

Loosely employed in modern times:

by Cullen;

by Sauvages;

Gen. II. Phlegmone. Phlegmon. by Vogel; by Turton.

the character now offered, and involving most of its species. Vogel, however, makes it a part of its generic character that the inflammatory tumour, in order to be a phlegmon, must be at least as large as a hen's egg; while Dr. Turton, in his useful glossary, not knowing how to reconcile the clashing descriptions which are thus given of it, merely explains it after the Greek manner "an inflammation," leaving the reader to determine the nature of the inflammation according to his own taste.

More correct meaning.

It is necessary, therefore, to come to something more definite; and I believe that the character now offered embraces the common idea of phlegmon; or, if not, will propose what should seem to form a boundary for it. And thus explained, it will comprise the following species:—

1.	PHLEGMONE COMMUNIS.	PUSH.
2.	——— PARULIS.	GUM-BOIL.
3.	——— AURIS.	IMPOSTHUME IN THE HEAD.
4.	——— PAROTIDEA.	PAROTID PHLEGMON.
5.	——— MAMMÆ.	ABSCESS OF THE BREAST.
6.	——— BUBO.	BUBO.
7.	——— PHIMOTICA.	PHIMOTIC PHLEGMON.

SPECIES I.

PHLEGMONE COMMUNIS.

Push. Common Phlegmon.

TUMOUR COMMON TO THE SURFACE; BRIGHT-RED; HARD; DEFINED; HEMISPHERICAL; POLARIZED; GRADUALLY SOFTENING AND BURSTING AT THE POLE.

Gen. II. Spec. I.

In vernacular language this species is denominated a *push;* and in size has a near approach to a boil, or furuncle;

but essentially differs from it in having its pus uniform and mature, while that of the boil is always intermixed with a core. It is commonly a mark of high entonic health, or a phlogotic diathesis; and rarely requires any other medical treatment than bleeding, or a few cooling purgatives.

Gen. II. Spec. I. Phlegmone communis. Push. Common phlegmon. How differs from a boil.

Where, however, pushes appear in crops, and especially in successive crops, they support a remark we had occasion to make in opening the present order; that in conjunction with the phlogotic diathesis there is probably a peculiar susceptibility of irritation; since we frequently find persons in the highest health, with firm and rigid fibres, pass great part, or even the whole of their lives, without any such affection as the present. Such susceptibility is far more common, indeed, to a habit of an opposite character, but it seems from this as well as from other circumstances, not unfrequently to inhere in the temperament we are now contemplating.

General character. Habit in which it often occurs.

SPECIES II.

PHLEGMONE PARULIS.

Gum-Boil.

TUMOUR SEATED ON THE GUMS; DEEP-RED; HARDISH; UNDEFINED; PAIN OBTUSE.

This is sometimes limited to the substance of the gums; and sometimes connected with a caries of a tooth or socket. In the first variety it is a disease of only a few days duration, and ceases almost as soon as it has burst or is opened: in the second, it will often continue troublesome till the carious tooth is extracted, or the carious

Gen. II. Spec. II. General character.

Gen. II. Spec. II. Phlegmone Parulis. Gum-boil.

socket has exfoliated: or the whole of its texture is absorbed; in which case the tooth will become loose, and may at length drop out spontaneously.

Suppuration to be encouraged,

Gum-boils, and especially where connected with a morbid condition of the subjacent teeth, or their alveoli, rarely disperse without passing into the suppurative stage: and hence the means of prohibiting this termination are usually tried in vain, much time is lost and protracted pain encountered. For these reasons it is better to encourage than to repel the suppurative process, by warm cataplasms or fomentations; and to open the tumour as soon as it begins to point. An early opening is of importance; for, from the toughness and thickness of the walls of the abscess, it is seldom that the confined pus obtains a natural exit with sufficient freedom; while in some instances the ulceration assumes a sinuous character, or works into the substance of the cheeks, and at length opens on their external surface. The worst and most painful gum-boils are those which form on the dentes sapientiæ: the swelling from the violence of the irritation, spreads rapidly and widely; so that the entire cheek is sometimes involved in it, the neck indurated, and the eye closed.

and the tumour soon opened.

Gum-boil, where severest.

SPECIES III.

PHLEGMONE AURIS.

Imposthume in the Head.

TUMOUR SEATED WITHIN THE EAR; PAIN ACUTE, THROBBING; HEAT AND REDNESS SPREADING EXTERNALLY; HEARING DISTRESSINGLY KEEN, OR STUNNED WITH IMAGINARY SOUNDS; ABSCESS BURSTING WITH THE SENSE OF A LOUD SNAP OR EXPLOSION.

Gen. II. Spec. III.

The term imposthume, an ordinary English name for this disease, is probably a corruption of aposteme:

but it is not always easy to trace the origin of popular names. The species is often the result of a morbid and suddenly suppressed discharge from the ear, and may be resolved by the application of leeches, or a blister, in the first stage of the inflammation; but if this have been neglected, narcotic cataplasms and fomentations will best ease the pain till the abscess breaks spontaneously.

Gen. II. Spec. III. Phlegmone auris. Imposthume in the head.

How produced.

This, however, is to suppose that the abscess lies in the external ear, either in the passage itself, or on the outer surface of the tympanum; which is almost always the case. When on the latter, the pain is very acute, from the great sensibility of the membrane: but it generally runs with speed through the ordinary progress, and heals without trouble. If the inflammation take place on the inner surface of the tympanum, or in the labyrinth, it is a complaint of more serious importance from the lodgment of matter after the abscess has opened. There is reason to believe that the matter has sometimes been absorbed: but dissections have proved that it has, in some cases, been locked up for years, and formed an occasional cause of hardness, or hebetude of hearing. In some instances it seems to have become acrimonious and to have ulcerated the tunic of the internal cavity, and rendered one or two of the small bones carious.

Formed in the external ear.

Pain, when most acute.

Formed within the tympanum.

Matter sometimes unabsorbed for years:

sometimes acrimonious and ulcerative.

SPECIES IV.

PHLEGMONE PAROTIDEA.

Parotid Phlegmon.

TUMOUR SEATED UNDER THE EAR; REDDISH; HARD; PAIN OBTUSE; SUPPURATION SLOW AND DIFFICULT.

It is not a little singular that Dr. Cullen, who extends the genus of phlegmone wide enough to embrace,

Gen. II. Spec. IV. Where arranged by Cullen.

Gen. II. Spec. IV. Phlegmone parotidea. Parotid phlegmon. loosely and incorrectly.

not only inflammation of the ear, and of the breast, gum-boil, and phimosis, but also furunculus, varus, gutta rosea, stye, and, as already observed, several affections of the bones, should have banished suppurative inflammation of the parotid and inguinary glands, not only to another genus, but to a very remote part of his system; where they occur, in the class and order of *local tumours*, in company with warts, corns, and sarcomata, which have naturally no inflammatory character. Here, too, they are conjointly described under the generic name of bubo, with the generic character of "glandulæ conglobatæ tumor suppurans;" a definition which does not apply to the parotid gland, whose structure is not conglobate but conglomerate. The present, therefore, is the proper genus for including suppurative inflammation of the parotid and inguinal, as well as of the mammary glands.

Phlegmonous inflammation of the parotid gland offers us the two following varieties:—

α Simplex. Simple parotid phlegmon.	Incarning and cicatrizing easily.
β Maligna. Malignant parotid phlegmon.	Accompanied with a foul slough, and incarning with difficulty.

α P. parotidea simplex. Simple parotid phlegmon. Process though slow, regular and healthy. Illustrated.

In the simple or benign variety, though the suppurative process is slow and inactive, the incarnation subsequent upon the breaking of the abscess is regular and unobstructed. I was lately requested, in consultation, to see a young lady of fifteen years of age, who has been troubled with this species of phlegmon for more than three months; about a fortnight ago there was an evident pointing towards the surface, and a feel of irregular fluctuation; it has since broken, a large quantity of good pus has drained away daily, and the tumour, which at first was extensive and hard, is very considerably diminished, and clustered or divided into lobes, and will, no doubt, shortly disappear altogether. Her general habit is relaxed, but does not seem to be strumous. She menstruated earlier than usual, and is of a disposition peculiarly sprightly and cheerful. The local treatment at the commencement was leeches, frequently applied, and alternated with mercurial plaster. But no benefit proceeding from the discutient plan, lotions of half water and half liquor, ammoniæ acetatis were afterwards employed to aid the suppurative process.

Gen. II. Spec. IV. α P. parotidea simplex. Simple parotid phlegmon. Treatment.

The abscess in some cases of this variety is of considerable magnitude, and consequently the discharge of pus very large. And we have some instances on record in which the pus has been absorbed and carried off by metastasis to some remote organ. Dr. Saunders gives a case in which it passed away by the rectum[*]; Alix, by a fontinel at the navel[†]; and the Transactions of Natural Curiosities, by the bladder[‡]. It has sometimes been confounded with parotitis or mumps; and has hence been said to sympathize with one or both testicles in males, and to be contagious. Cavallini has made this mistake in his collection of surgical cases[§]; and we find a like error in the Memoirs of Toulouse[‖].

Abscess sometimes very large.

Pus sometimes removed by metastasis. Examples.

Has been confounded with mumps.

The second variety of parotid phlegmon is of a malignant character. It seldom appears in early life, and in females seems sometimes to follow upon the cessation of the catamenia. It is still slower in its progress than the preceding; and when at length it breaks, the pus is imperfect and cheesy, or serous. It is also profuse and protracted to a long period and accompanied with foul sloughs. The patient is debilitated by the discharge, the irritation excites hectic fever, and the case frequently terminates fatally. Bark, hyoscyamus, conium, and similar tonics and narcotics have been tried; but for the most part with little success.

β P. parotidea maligna. Malignant parotid phlegmon.

Termination. Treatment.

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[*] Observations on the Red Peruvian Bark.

[†] Obs. Chirug. Facic. I.

[‡] Vol. I. Obs. 39.

[§] Collezione di Casi Chirurgici, I. 447.

[‖] Histoire et Memoires de l' Academie de Toulouse, Tom. I. 1782.

Gen. II. Spec. IV. β P. parotidea maligna. Malignant. parotid. phlegmon. Treatment.

It assumes, occasionally, a scirrhous hardness, and grows to a considerable extent. It has been extirpated but with variable success, when upwards of three pounds in weight*; sometimes with a cure†; but at other times it has degenerated into a foul, bleeding, extensive, and fatal ulcer‡.

Has been extirpated in a schirrhous state when of great weight.

SPECIES V.

PHLEGMONE MAMMÆ.

Abscess of the Breast.

TUMOUR SEATED IN THE BREAST; PALE-RED; HARDISH; IN IRREGULAR CLUSTERS; WITH A PRICKING AND ACUTE PAIN; SUPPURATION QUICK AND COPIOUS.

Gen. II. Spec. V. How formed.

This is sometimes produced by some accident, as that of a blow or severe pressure; but more generally proceeds from a redundancy and consequently undue stimulus of milk, when first secreted after child-birth, so that the lacteal tubes have not time to enlarge sufficiently for its reception: in which last case it is usually called MILK-ABSCESS.—"In either case the suppuration commonly begins in many distinct portions of the inflamed part; so that it is not one large circumscribed abscess, but many separate sinuses, all of which generally communicate. Now it usually happens that only one of these points externally, which being either opened, or allowed to

Usually a combination of separate sinuses:

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* Kalthchmied, Pr. de Tumore scirrhoso trium cum quadrante librarum glandulæ Parotidis extirpata. Jen. 1752.

† Siebold, Parotidis scirrhosæ feliciter extirpatæ Historia, Erf. 1791.

‡ Commerc. Lit. Nor. 1733-8.

Gen. II.
Spec. V.
Phlegmone mammæ.
Abscess of the breast.

break, the whole of the matter is to be discharged this way. But we sometimes find that the matter does not find a ready outlet by this opening, and then one or more of these different sinuses make distinct openings for themselves *."

and hence often opens in separate outlets.

In this case the complaint is usually protracted and tedious, though, where the constitution is good, and there is no lurking taint to intermix itself with the inflammation, the issue is always favourable.

Whence the cure tedious.

By Dioscorides called sparganosis

This sort of phlegmon was called by Dioscorides sparganosis, from the Greek term σπαργάω, "tumeo, distendo;" and after him it has still been so denominated by various modern writers. Sparganosis, however, was employed by Dioscorides in a collective sense, to signify not only milk-abscess, but a variety of tumours, and other diseases supposed to depend upon an overflow, suppression, misdirection, or depraved secretion of milk; and especially those which have since been described under the general term galactirrhœa. Many of these have little or no connection with each other; and particularly abscess of the breast, and that peculiar swelling of the lower limb which occasionally takes place soon after child-birth, to which the term is etymologically best applied, and to which therefore it is restrained in the present system.

which also imported other diseases

that have little connexion.

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* Hunter, on Blood, p. 469.

SPECIES VI.

PHLEGMONE BUBO.

Bubo.

TUMOUR SEATED IN A CONGLOBATE GLAND; REDDISH; HARD; DIFFUSE; NOT EASILY SUPPURATING; OPENING WITH A CALLOUS EDGE.

GEN. II. SPEC. VI.

Term whence derived.

BUBO is a Greek term borrowed from the Hebrew verb בע or בעה (bo or boa), importing "to swell," and merely doubled according to the analogy of the language, to give it an intense or superlative power, whence bobo, or bubo.

Ordinary seat. Causes. Treatment.

Buboes are chiefly found in the inguinal and auxillary glands. They are sometimes simple glandular inflammations, unconnected with any constitutional or foreign evil, and require nothing more than the common treatment; but they are often a result of constitutional affection, and very frequently a symptom of lues and pestis in which cases they can only be cured by curing the specific taint. Mr. Hunter asserts that he has seen buboes cured by vomits after suppuration has advanced.

Cured by vomits.

Has been confounded with a scrophulous tumour.

In an early stage the inguinal buboe has been confounded with a scrophulous tumour. A nice finger will generally discriminate them with ease. The bubonous tumour is smooth, uniform, and obtusely painful: the scrophulous is, to the touch, and sometimes to the eye, a cluster of small tubercles without pain.

SPECIES VII.

PHLEGMONE PHIMOTICA.

Phimotic Phlegmon.

TUMOUR SEATED IN THE PREPUCE; DIFFUSE; OBTUSELY PAINFUL; IMPRISONING THE GLANS, OR STRANGLING IT BY RETRACTION.

Gen. II.
Spec. VII.
Produced under two states of the glans.

If at the attack of inflammation the prepuce be in its natural state and cover the glans, it cannot be drawn back and the glans is imprisoned. If it should accidently have been retracted, or be naturally short and truncated, it cannot, after the inflammation has firmly fixed itself, be drawn forward, and the glans is strangled. And hence the species offers us two varieties:

α Incarcerans. Incarcerating phimosis.	The prepuce protracted and imprisoning the glans.
β Strangulans. Strangulating phimosis.	The prepuce retracted and strangling the glans.

Paraphimosis, what.

The first variety alone is denominated phimosis by some writers, the second being distinguished by the term paraphimosis, or cincumligatura. But the inflammation is one and the same, and the same specific name should express it; for the difference is a mere accident.

Causes.

Often advances rapidly.

Treatment.

This inflammation, like the last, though often produced by common causes, and hence perfectly simple, is often, also, the result of a specific virus, as in lues and blenorrhæa. It arises frequently with great rapidity; the prepuce is prodigiously distended with effused serum, and the mucous glands of the internal surface secrete an enormous quantity of pus before there is any ulceration or breach of surface. If the prepuce be re-

GEN. II. SPEC. VII. Phlegmone phimotica. Phimotic phlegmon.

Treatment.

tracted violently, and the glans strangulated, and cold applications, and topical bleedings prove ineffectual, it is often necessary to divide the prepuce to set the glans at liberty. And occasionally it is also necessary to perform the same operation when the glans is imprisoned by a protraction of the prepuce: for ulceration is apt to take place under these circumstances in either case, and the matter soon becomes erosive from communicating with the air: as much of it as possible, however, should be washed out by a syringe used several times a-day, and an astringent solution be afterwards injected, consisting of alum dissolved in water in the proportion of about a scruple to a quarter of a pint.

The imprisoning phimosis is said to occur not unfrequently from laborious exertion in a very narrow vagina *. I have not met with this result, but often with a lacerated prepuce. In many instances of both kinds relief has been easily obtained by grasping the penis with a very cold hand, and dextrously urging the prepuce forward or drawing it backward according to the nature of the case †.

Sometimes followed by gangrene.

When the inflammation is very violent, whether in the strangulated or retracted variety, and surgical attention has been neglected, gangrene will readily ensue, and an amputation of a smaller or larger portion of the penis may be absolutely necessary. In an instance of an amputation of this kind, recorded by Mr. Jamieson of Kelso, in the Edinburgh Medical Essays, the whole of the glans penis was restored by a process of pullulation: the new shoots having at first been mistaken for fungus, and attempted to be destroyed by escarotics. The fresh glans was well shaped and proportioned ‡.

Mortified glans has regerminated.

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* Essich, in Ziegenhagen Anweisung alle venerische Krankheiten—zu behandeln. A.D.B. xcv. 421.

† Andree, on the Gonorrhœa.—Hecker, Von Venerischen Krankheisten, &c.

‡ Vol. v. Art. xxxvi.

GENUS III.

PHYMA.

Tubercle.

IMPERFECTLY SUPPURATIVE, CUTANEOUS, OR SUBCUTANEOUS TUMOUR; THE ABSCESS THICKENED, AND INDURATED AT THE EDGE; OFTEN WITH A CORE IN THE MIDDLE.

GEN. III. Import of the term: formerly very loose and confused.

PHYMA, a Greek term importing a tubercle or small swelling, from φύω, "produco, erumpo," was used among the Greek and Roman physicians with great latitude and no small want of precision: sometimes, as by Hippocrates and Paulus of Ægina, being applied to scrophulous, and other imperfectly suppurative tumours; sometimes, as by Celsus and Galen, to tumours perfectly and rapidly suppurative, larger than a boil, but less painful and inflammatory, and without a core or ventricle: and sometimes by other writers, as Celsus also informs us, to fleshy excrescences or warts on the glans penis, which it was then the custom to destroy by caustics. And in consequence of this vague sense of the term, and the latitude of its original meaning, the great body of the Galenists, as Sauvages observes, applied it to protuberances of every kind.

Its exact meaning has hence excited discussion.

Modern writers have, hence, been at a loss in what exact signification phyma should be employed. Linnéus and Cullen have rejected it. Sauvages and Sagar have used it as the name of a distinct and separate order. Vogel, following the example of Hippocrates and Paulus, has reduced it to a genus of imperfectly suppu-

Gen. III. Phyma. Tubercle.

rative and glandular tumours; and, as a genus, it thus occurs in Dr. Willan's table of arrangement, including boils, carbuncles, and similar inflammations as its species. This seems to be the most accurate sense; and as such it is adopted in the present system, and made to include stye, boil, sycosis, and carbuncle; in all which we find some degree of imperfection in the suppurative or the ulcerative process of these small abscesses, or in both conjointly; and hence the pus is foul, and sanious, or the walls or edges of the abscess are thick and indurated, or the dead matter is not completely carried off, and remains behind in the shape of a core or a fungus, sometimes black and spongy, and sometimes excrescent and granulating.

Most accurate import.

Common character.

The following, therefore, are the species included under it:—

1.	PHYMA HORDEOLUM.	STY.
2.	——— FURUNCULUS.	BOIL.
3.	——— SYCOSIS.	FICOUS PHYMA.
4.	——— ANTHRAX.	CARBUNCLE.

SPECIES I.

PHYMA HORDEOLUM.

Sty.

TUMOUR SEATED ON THE VERGE OF THE EYE-LID; GRANULAR; HARD; REDDISH; SORE TO THE TOUCH; SUPPURATION CONFINED TO THE POINT.

Gen. III. Spec. I.

The vernacular term *sty*, or as it is sometimes written *stian*, is to be met with in the earlier writers, who ob-

Gen. III.
Spec. I.
Phyma Hordeolum.
Sty.

Origin of the vernacular name.

tained it from the Saxon, in which *stihas* (ꞅꞇıȝan) signifies "a rising, springing up, or ascent;" and hence in Bede's Bible, Mar. iv. 7. ꞅꞇıȝon ða þoꞃnaꞅ, (*stihon tha thornas*,) "up sprung the thorns." Wicliffe spells the old English derivation, *stigh*, but Spencer, who uses the word frequently, drops both the last letters of Wicliffe, as in the following couplet:

> To climb aloft and others to excel,
> That was ambition, and desire to STY.

Sometimes produced by hard drinking.

From the hardness of the margin of the tumour, and the imperfection of the suppurative process, Sauvages compares it to a small boil: and asserts that it is often the result of a morbid state of the stomach; adding that he knew a man who uniformly had a sty after drinking ardent spirits. The inflammation, though often very troublesome while it lasts, for the most part readily subsides upon the breaking the minute abscess, or puncturing it at its apex when mature.

SPECIES II.

PHYMA FURUNCULUS.

Boil.

TUMOUR COMMON TO THE SURFACE; DEEP-RED; HARD; CIRCUMSCRIBED; ACUTELY TENDER TO THE TOUCH; SUPPURATING WITH A CENTRAL CORE.

Gen. III.
Spec. II.
Character.

THE boil is a push with a central core; and like the push is found in persons of an entonic or phlogotic habit, with a peculiar susceptibility of irritation: on which account it often makes its appearance successively in different parts of the body, and sometimes synchronously, so that we meet with a crop at a time. This tumour is therefore

Gen. III. Spec. II. Phyma Furunculus. Boil.

chiefly found in persons of high health and in the vigour of youth.

Core.

The existence of a core offers a singularity in this affection that is well worth attending to, and shows that from some cause or other the ulcerative part of the process is imperfect. Upon Mr. Hunter's hypothesis, this must depend upon a weak action of the absorbents; but as we have already endeavoured to show that the material to be removed must be prepared for absorption, and conveyed to the mouths of the absorbent vessels before absorption can take place, and have suggested that it seems to be the office of the secreted pus to accomplish this purpose, it is probable that in the furunculus the pus, from some cause or other, is not quite genuine, and is possessed of a less solvent power than in common abscesses: whence a part of the dead matter remains attached to the living after the hollow has burst, and is thrown off from the base by sloughing.

How accounted for on Hunter's hypothesis.

Pus probably less solvent than ordinarily.

The mode of treatment is simple, and rarely requires medical or surgical assistance: though the diathesis should be lowered by bleeding, or purging, or both.

SPECIES III.

PHYMA SYCOSIS.

Ficous Phyma.

TUMOUR EXCRESCENT, FLESHY; FIG-SHAPED; SPROUTING FROM THE HAIRY PARTS OF THE HEAD OR FACE; GREGARIOUS; OFTEN COALESCING; DISCHARGE PARTIAL AND SANIOUS.

Gen. III. Spec. III. Specific name, whence derived.

The Greeks gave the name of sycosis from *σῦκον* "a fig," to various tubercles and excrescences, the shape of which was conceived to resemble that of a fig. By Celsus, however, it is limited to a particular kind of inflammatory, and imperfectly suppurative tubercle of the head and face. Vogel has understood the term nearly in the same sense; and Dr. Bateman has, hence, correctly described it as such in his list of cutaneous diseases.

GEN. III. SPEC. III. Phyma Sycosis. Ficous Phyma. How used by Celsus: by Vogel: by Bateman.

It is seated sometimes on the beard, and sometimes in the hair of the head. In the former case it consists of small tumours, hard, roundish, pea-sized; commonly in clusters; occasionally confluent or running into one another; and spreading from ear to ear; the discharge is small in quantity and of a glutinous texture, whence the beard becomes filthily matted.

Where seated. General character when on the beard.

The variety that appears on the head consists of softer tumours, of different sizes, and in clusters; they are seated among the hair; and throw forth from a fungous surface, an ichorous, copious, and fetid discharge. It is not often that this complaint is connected with any constitutional affection: and offensive as it is, it will generally be found to yield to cleanliness, and mild astringents; of which one of the best is starch-powder alone, or combined with an equal proportion of calamine. It makes an approach to one or two of the species of porrigo, but has characters sufficiently marked to keep it distinct, and to determine the present to be its proper station.

General character when on the head. Resembles porrigo.

SPECIES IV.

PHYMA ANTHRAX.

Carbuncle.

TUMOUR COMMON TO THE SURFACE; FLAT; FIRM; BURNING; PENETRANT; LIVID AND VESICULAR; OR CRUSTY ABOVE, WITH A SORDID GANGRENOUS CORE BELOW; IMPERFECTLY SUPPURATIVE.

ANTHRAX is a Greek term correspondent to the Latin carbunculus or carbuncle; literally a small live-coal, so denominated from the redness and fiery heat of the inflammation.

GEN. III. SPEC. IV. Specific term, whence derived.

Gen. III. Spec. IV. Phyma Anthrax. Carbuncle. Relation to the furuncle.

In what it differs.

General character.

The specific definition sufficiently points out its relation to the furuncle or boil, especially when the latter assumes an unkindly or malignant character from something peculiar in the part or in the constitution. "The inflammation that produces the carbuncle is, however, of a different nature from any of the former: it is stationary, observes Mr. Hunter, with respect to place, and is pretty much circumscribed, forming a broad, flat, firm tumour. It begins in the skin, almost like a pimple, and goes deeper and deeper, spreading with a broad base under the skin in the cellular membrane. It produces a suppuration, but not an abscess; somewhat similar to the erysipelatous, when the inflammation passes into the cellular membrane; for, as there are no adhesions, the matter lies in the cells where it was formed, almost like water in an anasarca. This inflammation attacks more beyond the middle age than in it, and very few under it. It is most common in those that have lived well. I never saw but one patient of this kind in a hospital. It appears to have some affinity to the boil; but the boil differs in this respect, that it has more of the true inflammation, therefore spreads less, and is more peculiar to the young than the old, which may be the reason why it partakes more of the true inflammation *."

Occurs chiefly in weakly habits

of a peculiar kind.

The carbuncle occurs chiefly, perhaps uniformly, in weakly habits, and hence, often in advanced life. But it is not all debilitated persons who have inflammations, that exhibit this disease: and we have here, therefore, another striking proof of the influence of idiosyncrasy, or a peculiarity of constitution upon the general laws and progress of inflammation; or of a peculiarity of that part of the constitution in which the inflammation shows itself: and, but for which, the inflammatory stages of the present disease would in all probability succeed each other in regular order, and the anthrax be reduced to the character of a common and benign abscess. Of the nature

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* On Blood, Inflammation, &c. Part II. Ch. IV.

GEN. III.
SPEC. IV.
Phyma
Anthrax.
Carbuncle.
The peculiarity unknown.

of this peculiarity we are too often able to trace out little or nothing; but so long as it continues, we have only a small chance of bringing the inflammation to a successful issue.

The carbuncle shows itself under the two following varieties:

α Pruna. Escar-carbuncle.	With a black crust; and oozing an erosive ichor, or sanies.
ϐ Terminthus. Berry-carbuncle.	Core or fungus spreading in the shape and colour of the pine-tree berry.

α P. Anthrax
Pruna.
Escar carbuncle.
ϐ P. Anthrax
Terminthus.
Berry carbuncle.

The first of these varieties was called pruna by Avicenna, from its assuming the colour, and often the oval figure of the sloe, or fruit of the prunus *spinosa*, *Linn.* The second derives its name from its assuming the figure and blackish-green colour of the fruit or berry of the pine-nut, or τέρμινθος of the Greeks, the pinus *Abies*, *Linn.* named by the Latins terebinthus; whence it has been called terminthus and terebinthus indifferently.

General remarks.

Where chiefly found.

As the carbuncle is an inflammation of great weakness set down on a peculiar predisposition, it sometimes shows itself among feeble infants in warm climates. According to Tournefort, in his Travels through the Levant, it attacks them chiefly in the back part of the throat, and proves quickly fatal. He describes it as endemic in his day among the islands of the Archipelago.

In more advanced life, for the same general reason, we meet with it frequently in those who have debilitated their frames by an excess of good living, and are verging on the feebleness of age. We may hence also account for its appearing in an early stage of the plague, the most debilitating disease in the whole catalogue. It sometimes shows itself in great numbers almost on its onset, or *m' drop* as the Arabians call it, who distinguish carbuncles by the name of jimmerat.

Treatment.

When unconnected with any other disease, a cure has been attempted by local stimulants, as cataplasms of tobacco and sal ammoniac, which has been a common

Gen. III. Spec. IV. C P. Anthrax Terminthus. Berry carbuncle.

practice in Russia; or of horse-radish *, or stone-crop (sedum *acre*†). Cantharides ‡, camphor ointments, and lotions of zinc or mercury have also been tried. To which, as in the case of cancer, has been sometimes added the sucking of toads: as though it were possible to draw out the lurking virus with the swallowed humours. More generally, however, it has been attempted to be destroyed or extirpated. Arsenic was recommended for this purpose as early as the age of Agricola; and has been employed in various forms, from that of orpiment to that of Plunket's caustic: above all which, however, Le Dran preferred corrosive sublimate. Riverius used other caustics, and Pouteau the actually cautery; which has, indeed, been very successfully and skilfully adopted of late in a variety of similar affections by M. Maunoir. But radical success must after all entirely depend upon supporting and giving strength to the system by cordials, and tonics, for if this cannot be accomplished, it is perfectly clear that the predisposition will be neither subdued nor subside spontaneously: that the ulcerations will not heal, and the system must gradually sink under their constant discharge and irritation.

Sucking of toads.

Arsenic.

Caustics.

Cordials and tonics.

Carbuncle of cattle.

The carbuncle of cattle is frequently owing to the poisonous sting of various insects; and hence a similar cause has, by some practitioners, been supposed to exist in mankind. Pallas suspects the furia *infernalis;* while others have mentioned the sirex *gigas* or large-tailed wasp. It is probable that these may have been occasional causes, where there has been a predisposition to the disease in the constitution.

How far connected with the human, in origin.

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* Paré, Lib. xxi. cap. 32.

† Buchoz und Marquet neueste Heilkunde, Nürnb. 1777.

‡ Riverius, Observ. Med. lent. iv.

GENUS IV.

IONTHUS.

Whelk.

UNSUPPURATIVE, TUBERCULAR TUMOUR; STATIONARY; CHIEFLY COMMON TO THE FACE.

Gen. IV. Generic term, import of.

Ionthus (ἴονθος) is literally a "violet, or purple eruption, or efflorescence," from ἴον, viola; whose colour is frequently that of the whelky or bubukled face. It includes all those firm and indurated pimples, of whatever description, unconnected with fever, and having a subcutaneous base, with which the face is often disfigured, whether solitary, gregarious, or confluent. These may be comprehended under the two following species:—

1. IONTHUS VARUS. STONE-POCK.
2. ——— CORYMBIFER. CARBUNCLED-FACE. ROSY-DROP.

SPECIES I.

IONTHUS VARUS.

Stone-pock.

TUMOUR RED; HARD; PIMPLY; DISTINCT; GREGARIOUS; SORE TO THE TOUCH; SOMETIMES OOZING A LITTLE FLUID AT THE TIP.

Gen. IV. Spec. I.

This sort of pimply eruption is so common that there is no one but has seen examples of it; and few who have

Gen. IV.
Spec. I.
Ionthus
Varus.
Stone-pock.

not at times given examples of it in their own persons. It exhibits two varieties:—

α Simplex. Simple Varus.	Broad-based, bright-red, solid.
β Punctatus. Maggot-pimple.	Tipped with a black dot, and discharging, on pressure, a grub-like concretion of mucus.

General character.

The first, on being firmly pressed with the finger, oozes at times a little limpid serum, but no concrete mucus; and even for this it is necessary to make the pressure harder than for the discharge of the mucus in the maggot-pimple. The mucus concretes in a follicle, or natural passage; and hence there is less inflammation and soreness than in the simple varus: yet the sides and root of the follicle are thickened and indurated: and hence the papulous elevation. Gouland's lotion and a few other empyrical cosmetics, as white paint of bismuth or cerusse, alike deleterious in their effects, and apt to produce palsy, are a common resource among the multitude for both these varieties. They have sometimes succeeded, with little other sacrifice than the exorbitant price which the purchaser has had to pay for them; but the cure has far more frequently been bought (if there have been a cure at all) at an expense of a ruined constitution, and the exchange of a temporary local disfigurement for a life of general ill health.

Cosmetics.

Causes.

Both varieties are occasionally produced by some internal affection, chiefly of the stomach; as acrimony, or a sudden chill from taking a draught of cold water or cold milk; or eating cold vegetables, as turnips, cucumbers, and melons, when in a state of great heat and perspiration. Catching cold in the feet has sometimes produced the same effect. These are cases of direct sympathy: the torpitude of one organ being communicated to another which is predisposed to associate in its action.

Treatment, general.

They have occasionally yielded to powerful sudorifics, and especially when combined with narcotics, as Dover's

Gen. IV. Spec. I. Ionthus Varus. Stone-pock. Treatment.

powder in strong doses taken for several nights in succession, the part affected being at the same time wrapped in flannel. They have also yielded to metallic and terebinthinate stimulants, as eight grains of Plummer's pill, and a scruple of camphor made into six or eight pills, and taken daily for ten days or a fortnight. But they generally require some local irritant at the same time, as savine cerate, the camphor or mercurial liniment, or the stronger liniment of ammonia, used so as to excite blistering. Yet after they have resisted these and other preparations with great obstinacy for years, they have at length vanished beneath a severe attack of fever: or have disappeared spontaneously. The complaint, however, is occasionally hereditary, and bids equal defiance to time, to fevers, and to medicines. Dr. Darwin, under the name of gutta rosea, has a copious collection of cases in point; some of them drawn from old maids, and others from elegant young ladies, and each duly authenticated with initials, to which the reader may turn at his leisure. Among the rest is that of "Miss L. a young lady about eighteen, who had tried variety of advice for pimples over the greatest part of her face, in vain. She took rhubarb five grains, and emetic tartar a quarter of a grain, every night for many weeks, and blistered her face by degrees all over, and became quite beautiful *."

Local.

Illustrated.

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* Zoonom. Cl. II. I. iv. 6.

SPECIES II.

IONTHUS CORYMBIFER.

Carbuncled-face. Rosy Drop.

TUMOURS CONFLUENT; CORYMBOSE; MOTTLED WITH PURPLE; OFTEN DISFIGURING THE NOSTRILS WITH PENDULOUS LOBES.

GEN. IV. SPEC. II. Causes.

As the preceding species is produced by a sympathy of excernents of the skin with a torpid state of the stomach, the present is produced by a like sympathy with the liver: and hence it is proverbially regarded as a proof that those who are thus disfigured, have indulged too largely in wine and other spirituous potations. So Shakspeare, in describing the physiognomy of a hard drinker, tells us that "his face is all bubukles, and whelks, and knobs, and flames of fire!!" And, in like manner, as I learn from Dr. Perceval, the common name for these protuberances in Ireland is GROG-BLOSSOMS.

Tumours usually very irritable.

The tumours in this species are usually more susceptible of irritation than in the preceding; or, in other words, the cutaneous vessels are in a state of increased debility; and hence they are exacerbated by cordials or exposure to heat.

Treatment. Gradual change of diet.

As this is, in most cases, an habitual affection, or one of long standing, no change of diet, however desirable, should be made suddenly, for this would run a risk of producing dropsy, and, perhaps, paroxysms of atonic gout: but a gradual change to a more sober and

Apperients.

temperate regimen is highly to be recommended: and in the mean time the patient should have his bowels kept regularly open with warm eccoprotics, as the ex-

Gen. IV. Spec. II. Ionthus corymbifer. Carbuncled face. Rosy drop. Treatment.

tract of colocynth and myrrh pill, and be put upon a course of equitation, or such other exercises as may recruit the spirits and invigorate the system generally, in which benefit the liver will become a chief participant. The tumours may not, perhaps, totally disappear: but they will often diminish in magnitude, and assume a healthier hue: or at least we shall hereby prevent them from any farther enlargement, and especially from passing into that carbuncular ulceration we have just noticed.

GENUS V.

PHLYSIS.

ULCERATIVE, SUBCUTANEOUS TUMOUR; FLAT; TENSIVE; GLABROUS; DIFFUSED; HOT; THROBBING; AT LENGTH FLUCTUATING WITH AN ACRID ICHOR.

Gen. V. Origin of generic name.

Phlysis, from the Greek φλύζω, "ferveo," was formerly employed in a very indeterminate meaning to express cutaneous eruptions filled with any kind of fluid, whether purulent or ichorous: more generally, however, it had a bearing towards the sense of ichorous or vesicular pimples. Dr. Willan has, on this account, correctly limited phlyctænæ, derived from the same root, to this import, in his table of definitions: and such is the restriction of phlysis, and all its compounds in the present system.

Of the genus now offered, there is but one well-ascertained species, the paronychia, or whitlow.

SPECIES I.

PHLYSIS PARONYCHIA.

Whitlow.

INFLAMMATION SEATED ABOUT THE NAILS AND ENDS OF THE FINGERS; PAIN ACUTE AND PRICKING, SHOOTING UP THE HAND.

Gen. V. Spec. I.

Under this species are included the following varieties:

α Cutanea. Cutaneous whitlow.	Effusion immediately under the skin.

GEN. V. SPEC. I. Phlysis Paronychia. Whitlow.

β Tendinis. Tendinous whitlow.	Effusion among the tendons.
γ Periostii. Malignant whitlow.	Effusion pressing on the periosteum.

In the first variety, the acrid effusion is poured forth between the skin and the subjacent muscles, to which, however, it is limited.

In the second, it insinuates itself between the tendons and the periosteum. And in the third, between the periosteum and the bone, which is often, hereby, rendered carious. It is to this last, or malignant whitlow, that the term *felon* is most correctly applied.

Felon, what?

Similar inflammations are occasionally to be found in the soles of the feet, and palms of the hands; they break through the skin or cuticle with difficulty from their thickness; and hence become diffused, and, in the latter case, separate the cuticle from the skin beneath.

Found occasionally in other parts.

In the whitlow, the acute and lancinating pain complained of arises partly from the thickness and inelasticity of the skin about the finger-nail, but more from the hardness of the finger-nail itself; both which act like a tight bandage upon the inflamed part, and do not allow it to swell or give way to the extravasation. In these cases, therefore, we can easily see why the application of poultices should be of more service than in any other; for they can here act mechanically; or, in other words, their moisture becomes imbibed by the cuticle, as by a sponge, so that it softens, grows larger in its dimensions, and less rigid in its texture: while the nail itself loses a part of its hardness, and becomes suppler. It is in consequence of the peculiar firmness of the skin around the nail that the soft parts below are so often seen pushing out through a very small opening in the skin as soon as this has been effected, and appearing like a fungus; but so exquisitely irritable as to give a more impressive idea of soreness, than, perhaps, any other kind of ulceration whatever. All this proceeds from the surrounding belts of the cuticle not giving way to the increase of the parts underneath; whence they

Acute pain, how produced.

Cataplasms peculiarly useful.

Soft parts below, why pushing through the opening.

Gen. V. Spec. I. Phlysis Paronychia. Whitlow.

Protruded part not to be removed by escharotics.

are squeezed out of this small opening like paint out of a bladder. It is a common practice to eat away this protruded part by escharotics, as if it were a diseased fungus; but this is to give additional pain without any benefit, for the pressure from below will not be hereby diminished. By continuing the poultice, the tumefaction will subside, and consequently the pressure cease.

Treatment.

In the first stage of the complaint leeches should be applied, and if the inflammation be hereby diminished, it may sometimes be carried off by astringent lotions, or ardent spirits, which excite the surrounding absorbents to additional action. Most of the causes of inflammation operate in the production of this peculiar affection. It is also occasioned by an incurvation of the nail*; possibly sometimes by a caries or morbid state of the subjacent bone in the tendinous and periosteous variety, as asserted by Siebold†; and Mr. John Pearson has shown that it may occasionally result from a syphilitic diathesis, or any other depraved habit‡. It seems, moreover, in some cases, to be produced by the bite, or burrowing of the larves of one or more minute, and, to the naked eye, invisible insects, hatched on the leaves of various field plants, and especially fescue-grass: and is said to be also occasioned by the bite of the gordius *aquaticus*, or hair-worm.

Produced by most causes of inflammation.

By peculiar causes.

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* Vicat. Delect. Observ. Pract.

† Chirurgisches Tagebuch. xi.

‡ Principles of Surgery, P. i.

GENUS VI.

ERYTHEMA.

Inflammatory Blush.

RED, GLABROUS, TUMID FULNESS OF THE INTEGUMENTS; DISAPPEARING ON PRESSURE: PAIN BURNING; INFLAMMATION ULCERATIVE; TERMINATING IN CUTICULAR SCALES, OR VESICLES; OCCASIONALLY IN GANGRENES.

GEN. VI. Why deserving of close attention.

THIS genus of inflammation is entitled to a minute and discriminative attention, not only on account of its violence and tendency to an almost unlimited spread, but from its having been very generally confounded with an exanthem or eruptive fever which, in one or two of its species, it frequently accompanies, but of which it is then a mere symptom.

Generic term employed by Hippocrates;

Erythema, from ἔρευθος, rubor, is a term of Hippocrates, who uses it as nearly as may be in the sense now offered; and for which many modern writers of our own country have not unaptly employed the vernacular term INFLAMMATORY BLUSH; since the redness has often very much the appearance of a blush, or glowing suffusion of the cutaneous capillaries. For ERYTHEMA Celsus and Galen have unfortunately adopted the term *erysipelas*, whence Duretus, in his Latin version of Hippocrates, has used *suffusio erysipelatosa*. And hence erysipelas has been made a very common synonym of erythema by general writers, while the nosologists, with a few exceptions, have limited erysipelas to that species of exanthem or eruptive fever which is vernacularly known by the name of St. Anthony's Fire; and

for which erysipelas has been used by Celsus and Galen; though since applied to an eruptive fever by many nosologists:

GEN. VI. Erythema. Inflammatory blush.

have revived erythema to express the local affection, or peculiar inflammation before us, in which the pyrexy is merely symptomatic.

who have restored erythema to its original import: whence the two disorders have been confounded. Distinctive Characters.

Frequently, however, as these two disorders have been confounded, from an indiscriminate application of the same name to both, it will not be difficult to draw a distinctive line between them. Erythema bears the same analogy to phlegmon, as erysipelas does to small-pox. Phlegmon is local inflammation tending to suppuration; erythema, local inflammation tending to vesication: small-pox is an idiopathic fever producing a phlegmonous efflorescence; erysipelas, an idiopathic fever producing erythematic efflorescence. Small-pox is always contagious; erysipelas occasionally so; phlegmon and erythema have no such tendency.

Erythema sometimes used in a second sense, equally loose and indeterminable.

The distinction then between erysipelas and erythema is clear; yet the confusion, just noticed, has been increased by some writers who have not only used erysipelas in its popular yet erroneous signification of erythema, but have also employed erythema in a new and unjustifiable sense; as occurs particularly in Dr. Willan's classification of Cutaneous Diseases: where, while erysipelas is made to embrace both erysipelas and erythema, as these terms have hitherto been commonly used, erythema is arbitrarily appropriated as the name of another collection of cutaneous erubescences of very different characters, and produced by very different causes; some of them primary, others symptomatic affections; some constitutional, and others local; occasionally smooth, papulous, tubercular, or nodose; most of which should be distributed under different divisions.

Thus introduced and explained, erythema, as a genus, will be found to comprise the six following species, the first three of which are taken with little alteration from Mr. Hunter:

1. ERYTHEMA ŒDEMATOSUM.	EDEMATOUS INFLAMMATION.
2. ——— ERYSIPELATOSUM.	ERYSIPELATOUS INFLAMMATION.

Gen. VI. Erythema. Inflammatory blush.

3.	ERYTHEMA GANGRÆNOSUM.	GANGRENOUS INFLAMMATION.
4.	——— VESICULARE.	VESICULAR INFLAMMATION.
5.	——— PERNIO.	CHILBLAIN.
6.	——— INTERTRIGO.	FRET.

Proximate cause mostly a peculiar irritability general or local.

Most of these depend upon a peculiar irritability of the constitution, or of the part in which the inflammation or erythema appears; and the common, though, perhaps, not the sole cause of such irritability is debility or relaxation.

Distinctions of Galen.

Galen, who justly distinguishes between suppurative, or, as he calls it, phlegmonous inflammation, erythematic (with him erysipelatous), and edematous, ascribes the first, according to the old doctrine of temperaments, to a prevalence of the sanguineous diathesis; the second to that of the bilious; and the third to that of the phlegmatic or pituitous*. That there is generally a peculiar habit in the last two, and often, as we have already observed, in the first, is so clear as to be indisputable: but it is by no means equally clear that such peculiarity of habit is dependent upon the immediate cause Galen has adverted to. The temperaments of the Greek physicians, excepting when in excess, are not inconsistent with the condition of health; and hence, therefore, in connexion with the temperament there is usually, in the last two inflammations, a habit of debility or relaxation. And where this exists, the very same stimulus that in a perfectly healthy frame would produce a common adhesive or suppurative inflammation, under this state of the system changes the character of the inflammatory action, and urges on the ulcerative process from the first. It usually commences with peculiar violence, and is peculiarly apt to spread; the surrounding parts being easily excited to act or sympathize in an action to which they are prone. Hence, continued sympathy is a common

How far applicable to the present genus.

Erythematic inflammation why ulcerative rather than phlegmonous.

Continued sympathy a common effect, and why?

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* De Tumoribus, Præter. Nat. Tom. III. xx.

Gen. VI. Erythema. Inflammatory blush.

though not an universal effect; for we sometimes meet with very considerable inflammations confined to the part irritated, notwithstanding that the irritated part evinces great violence of action. Mr. Hunter has illustrated this difference of effect by referring to a piece of paper under two different states, dry and damp. In dry paper a blot of ink applied to it will not spread, and remains confined to the point of incidence; in wet paper it spreads easily, being attracted by the surrounding moisture to which it has an affinity.

Illustrated.

SPECIES I.

ERYTHEMA ŒDEMATOSUM.

Œdematous Inflammation.

COLOUR SCARLET; SPREADING WIDELY AND DEEPLY THROUGH THE CELLULAR MEMBRANE, WHICH OFTEN IMPERFECTLY SUPPURATES, SLOUGHS, AND BECOMES GANGRENOUS.

Gen. VI. Spec. I. General character.

This is the "edematous inflammation" of Mr. Hunter, who observes, that, when the extravasated fluid is water, it has very much the appearance of the adhesive inflammation, and probably resembles it more nearly than any other erythema, being of a scarlet colour, but much more diffused.

The skin, through the whole range of the intumescence, appears glabrous, and the redness vanishes upon a pressure of the finger, but returns as soon as the pressure is removed. The extravasated fluid is principally serum, and hence the swelling spreads wider than the inflammation itself. It is very painful, or rather very sore, but has less of the sensation of throbbing than the adhesive inflammation. It is apparently limited to the surface, yet it probably goes much deeper: for the extravasated fluid is in too large a quantity to be furnished by the cells of the cutis alone: but as the swelling and the inflammation do not here keep pace with each other as in the adhesive description, we have not the same guide to direct our judgment. Coincidently with the remarks already offered, Mr. Hunter observes that "the difference between this and the adhesive inflammation arises, I conceive, from the principle of inflammation acting upon a dropsical disposition, which is always attended with weakness; whereas a greater degree of strength would have produced the adhesive inflammation under the same cause or irritation. And what makes me conceive this, is, that in many cases of anasarcous legs we have exactly this inflammation come on from distension, which adds to the extravasation of the serum, as well as in most cases of scarifications of edematous parts to evacuate the water. When this inflammation takes place it is much more lasting than the adhesive; and I believe, seldom or never produces suppuration: but if it should run into this stage, it is more general, and the whole cellular membrane in the interstices of parts is apt to mortify and slough, producing very extensive abscesses, which are not circumscribed*."

GEN. VI. SPEC. I. Erythema œdematosum. Edematous inflammation.

Sorer but less throbbing than adhesive inflammation.

Probably goes deeper than the surface.

Habit often dropsical.

Inflammation more lasting than the adhesive.

Sometimes suppurates, spreads widely, and becomes gangrenous.

There is no difficulty in determining why edematous inflammation should rarely, if ever, produce suppuration, and why it should be of longer continuance. Suppurative inflammation is, generally speaking, the process of a healthy part or habit taking place instinctively for the purpose of removing something that is dead, irritating, or otherwise mischievous, and of filling up the space hereby produced with sound living matter. In edematous inflammation the part or habit is unhealthy, and debili-

Why edematous inflammation rarely suppurates.

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* On Blood, Part II. Ch. II. Sect. vii. p. 269.

Gen. VI. Spec. I. Erythema œdematosum. Edematous inflammation.

tated; and hence, while there is necessarily less tendency to suppuration, there is less power of recovery.

Curatic intention.

The general curative intention therefore may be expressed in a few words. It should consist in whatever has a fair promise of giving local or constitutional tone, or both. Hence the benefit of astringent epithems and lotions whether formed of earths, acids, or metallic oxydes, applied to the part affected; and of stimulants where the action is peculiarly weak, as camphor-water, or a solution of the acetate of ammonia, with proof spirit proportioned to the degree of torpor. And hence, as internal medicines, bark, columbo, myrrh, iron, will often be found highly serviceable, in conjunction with a generous diet, pure air, and such exercise as may be taken without fatigue.

SPECIES II.

ERYTHEMA ERYSIPELATOSUM.

Erysipelatous Inflammation.

COLOUR DEEPISH-RED; SUPERFICIAL; WITH A DETERMINED EDGE IN A SERPENTINE DIRECTION; THE PART WHICH HAS PASSED THROUGH THE ACTION HEALING AS THE PART NEXT ATTACKED BECOMES AFFECTED.

Gen. VI. Spec. II.

This is the "erysipelatous inflammation" of Mr. Hunter; and is evidently that which symptomatically accompanies the erysipelas as an exanthem, or eruptive fever. It is more commonly cutaneous than situated in the deeper-seated parts; although in some constitutions almost every inflammation, wherever it takes place, will run deep as well as wide. The skin, however, appears to be most susceptible of its action; for it will spread over a prodigious

Commonly cutaneous.

surface of skin, while it rarely affects even the cellular membrane underneath; and in this respect, especially, it differs from the preceding species. The extravasation moreover is less than either in the edematous or even the adhesive inflammation. It appears to support itself by continued sympathy; for it commonly begins at a point, and spreads in a migratory direction, as the part first attacked recovers. This cannot, therefore, be merely constitutional; for, if it were, the parts already inflamed could not recover, while the morbid condition of the constitution disposes the surrounding parts to the same action: but it affords an idea that, when the parts affected have once gone through the action, they lose the disposition and become healthy. This property is not peculiar to the inflammation before us: the ring-worm and many other cutaneous affections have the same tendency.

Gen. VI. Spec. II. Erythema erysipelatosum. Erysipelatous inflammation.

And rarely affects the cellular membrane.

Supports itself by continued sympathy, the parts first attacked soon recovering: and losing the morbid predisposition by the action of the disease.

Other examples of the same.

Mr. Hunter observes that this inflammation is more common in the summer than in the winter, especially in hospitals; and believes that it takes place more frequently after wounds on the head than any where else. "I have often," says he, "seen it begin round a wound on the scalp, and extend over the whole head and face; the eye-lids being very much swelled and the ears thickened; it has then advanced to the neck, shoulders, and body, creeping along both arms, and terminating at the fingers ends: the part which attacks the body often descends to both thighs, passes down the legs, and terminates at the ends of the toes. And while this is going on, it is as expeditiously cured behind, and the skin peels off from the cured parts." Sometimes, however, it stops suddenly in its course, and assumes a milder character.

More frequent in summer than in winter: more common after wounds on the head than elsewhere; migrates over the whole body.

Sometimes stops abruptly.

If it proceed deeper than the skin into the cellular membrane, it often suppurates, and at times occasions mortification in the cells by which air is let loose; and it is this state of the disease that forms the erysipelas *phlegmonodes* of Galen*, Van Swieten †, and many later

If it reach the cellular membrane it suppurates; forming the erysipelas phlegmonodes of Galen.

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* Mat. Med. Lib. XIV. cap. II.

† Comment. Tom. II. § 723.

Gen. VI. Spec. II. Erythema erysipelatosum. Erysipelatous inflammation.

writers, who have used erysipelas in the loose manner I have already pointed out, as synonymous with erythema. The effect of this mixture of inflammations produces a strange feel, for it is neither that of fluctuation nor of crepitation; and, as there are no adhesions, the matter finds an easy passage into the common cellular membrane, increasing the same kind of suppuration wherever it goes; and as mortification, and consequently putrefaction, follow speedily, the discharge becomes very offensive. As the parts loaded with effusion seldom ulcerate, they should be opened early; for the fluid either gets into the cellular membrane from the want of adhesions, or separates parts that are only attached, as the periosteum from the bone, or muscles from muscles; while the true suppurative inflammation, on the contrary, ulcerates briskly, and hence should be allowed to burst or at least should not be opened early.

Gives a peculiar sensation to the touch.

Effusion should be soon evacuted.

Some degree of fever at first:

which soon subsides, while the inflammation continues.

At the commencement of this inflammation there is commonly some degree of fever, accompanied with prostration of strength and dejection of spirits, and especially with loss of appetite. But the fever soon subsides, while the inflammation pursues its course; yet since one source of irritation has thus departed, it is less violent, and sometimes assumes a chronic character.

Treatment.

Tonics.

As this, like the last, is a disease of weakness, the same general tonic plan will be calculated to oppose it; and, where there is a tendency in the separated skin to crack, absorbent earths or powders should be scattered freely over the ulcerative or oozing parts, to imbibe the acrid fluid as it escapes, or the ulceration will soon become extensive; and the feeble and inflamed subjacent skin, hereby exposed to the stimulus of external agency, will grow gangrenous with great speed. Finely pounded starch is a useful powder for this purpose; as it combines a tonic and an astringent with an absorbent power; so, likewise, is a mixture of equal parts of starch and finely levigated calamine or rhubarb. The last I have sometimes thought peculiarly effectual in checking the irritation; as the second appears to be in preventing the

Absorbent earths applied locally.

Starch.

Calamine. Rhubarb.

Gen. VI. Spec. II. Erythema erysipelatosum. Erysipelatous inflammation.

further spread of the inflamed outline that surrounds the separated cuticle.

Sometimes attacks infants; chiefly in a mixt form, proceeding with great rapidity, and spreading to the abdominal viscera.

This species of inflammation sometimes attacks infants from a very early period after birth; and, what is more singular, they have in a few instances been born with it. In such cases it appears to be produced by some occasional cause, co-operating with an erythematic diathesis derived hereditarily. It generally assumes the mixt form of phlegmonous erythema; suppurates imperfectly as it takes its course through the cellular membrane, and is often succeeded by gangrene. Its progress is very rapid from the relaxed state of the infantile fibre: and from the extrication of air, as soon as gangrene is produced, the tumified surface has the mixt feel already noticed of fluctuation and erepitation. It commences usually about the genitals, works its way below towards the thighs and legs, and above towards the abdomen, and often excites on the peritoneum the same caseous or purulent secretion which is so apt to form on this membrane in puerperal fever. As there is no disposition to adhesion, the fluid spreads in every direction, wherever the ulceration makes a way for it; and hence it has often descended in great abundance into the tunica vaginalis and labia pudendi.

Purulent secretion very copious.

Treatment.

Stimulant epithems of ether, alcohol, and camphorated spirits, applied in the first stage of the disease to the parts affected, have been found the most beneficial practice: to which ought by all means to be added the use of the bark in any way in which it can be introduced, especially in that of injections repeated several times a day.

SPECIES III.

ERYTHEMA GANGRÆNOSUM.

Gangrenous Inflammation.

THE COLOUR DUSKY-RED; SUPERFICIAL; CUTICLE SEPARATED FROM THE CUTIS BY A BLOODY SERUM; THE CUTIS, WHEN DENUDED, EXHIBITING DARK BROWN SPOTS, DISPOSED TO BLISTER, AND SLOUGH; OCCURRING CHIEFLY IN THE EXTREMITIES.

Gen. VI. Spec. III.

Where chiefly to be found.

THE gangrenous erythema, like the two preceding species, is a frequent companion of debilitated or relaxed constitutions, but is mostly to be met with in advanced age, or weakly adolescence, or infancy; and particularly where, in old age, the constitution has been broken down by habits of intemperance and excess; the circulation is languid, and the blood even in the arteries assumes a venous appearance. The inflammatory stage is in these cases sometimes very slight, and the gangrene is ushered in with very little previous affection.

Anteceded by little previous inflammation.

A result of the preceding species in vitiated air.

Either of the preceding species will pass readily into the present, in a warm, stagnant, and corrupt air; for the same reason that all hospital wounds run rapidly into the same state under the same circumstances, as we shall have to notice hereafter.

Curative intention.

Local applications are here of far less importance than an attention to the general condition of the constitution. Stimulants and perfect cleanliness are perhaps all that are demanded under the first head; while, under the second, pure air, and a steady course of tonic medicines and diet, adapted to the age and habits of the patient, are absolutely indispensable; and can alone furnish any hope of recovery.

How far this disease appertains to the ignis sacer of the Roman writers, will be seen under the ensuing species, which forms another subdivision of the same affection.

Gen. VI. Spec. III. Erythema gangrænosum. Gangrenous inflammation.

SPECIES IV.

ERYTHEMA VESICULARE.

Vesicular Erythema.

COLOUR PALE-RED; SURFACE ROUGHISH, AND COVERED WITH CROWDING MINUTE VESICLES, FILLED WITH AN ACRID, OFTEN A REDDISH FLUID; PROGRESSIVELY TRAILING INTO THE NEIGHBOURING SOUND PARTS.

Gen. VI. Spec. IV.

This species admits of two varieties, which have been pointed out from the age of Celsus.

α Benignum.	Benign vesicular Erythema.
β Corrosivum.	Erosive vesicular Erythema.

α E. vesiculare benignum. Benign vesicular erythema.

In the first, the redness and vesicles advance without a breach of the cuticle, as the part that has passed through the action is healing.

β E. vesiculare corrosivum. Erosive vesicular erythema.

In the second, the vesicles break in the part first affected; and the erosive fluid produces tracts of sanious ulceration as the redness advances.

General remarks. Ignis sacer synonymous with this and the preceding species.

Under the present and the preceding species is included the IGNIS SACER of the ancients; about which much has been written, but which has been seldom understood, and never hitherto allotted a clear methodic position. The author has taken some pains upon the subject, and trusts he will be able to establish the true boundary and character of a disease, not more frequently described by the physicians, than celebrated by the poets of antiquity.

Gen. VI. Spec. IV. Erythema vesiculare. Vesicular erythema.

The common error has consisted in making the ignis sacer, or holy fire, an exanthem or eruptive fever; an erysipelas or a pestis; or some other idiopathic fever of the same order. There is no doubt, indeed, that, like the erysipalatous erythema, it has at times been met with as an accompanying symptom in pestis; and when we come to treat of this disease, a distinct notice will be taken of the variety which such an accompaniment produces, and of which the plague of Athens seems to furnish us with a tolerable example; but the ignis sacer, in its genuine and simple state, instead of being marked with a low eruptive fever, has often very little fever of any kind; certainly nothing more than symptomatic fever; and by Celsus is described as being best cured by an ephemeral or any other fever which may give increased action to the system; hereby proving that this, like the entire group of erythemas, is a result of debility.

Common erroneous view of ignis sacer; usually accompanied with but little pyrexy. A result of debility.

In ancient times some diseases were supposed to be inflicted on mankind by the special interposition of the Divinity, or of his ministers; and to these was assigned the name of sacer, or holy; though the peculiar crimes for which they were inflicted, or the names of the particular persons who in this manner first drew down the special vengeance of heaven upon their atrocities, have not been communicated to us. The later term of Saint, or Sanctus, as in St. Anthony's fire or St. Vitus's dance, are of parallel origin, and express corporeal punishments first inflicted by the agents or supposed agents of the deity whose names they respectively bear. Ignis is a term expressive of the heat, redness, acrimony, and erosive power of a disease; and is hence applied to the present in common with many other affections.

Import of sacer in medicine. Of Sanctus, or Saint.

The best description of the IGNIS SACER that has descended to us from the Roman writers, is that of Celsus. He represents it as a genus comprising two species, the first of which is precisely parallel with the species before us, and the second with the erythema *gangrænosum*, or the preceding; and, in order to prevent any doubt upon this subject, the definitions of both

Description from Celsus. His first species, synonymous with erythema vesiculare.

Gen. VI. Spec. IV. Erythema vesiculare. Vesicular erythema.

His two varieties of this species.

His second species synonymous with erythema gangrænosum.

species are here given, as nearly as may be, in the words of Celsus himself. "It has," says he, "two species; one (the vesicular erythema of the present system) is reddish, or a mixture of redness and paleness, rough with approximating vesicles *(pustulas)*, none of which are larger than the rest, and which for the most part are very small. In these are almost always found a fluid (*pus*), and often a red colour with heat*." Then follows his description of the two varieties just given, the benign and erosive, in the following words: "sometimes it trails along, the part healing that was first diseased;" corresponding with the variety α of the present system. And "sometimes the part ulcerating; in consequence of which the vesicles (pustulæ) break, the ulceration keeps spreading, and the fluid escapes;" alike corresponding with the variety β. Celsus then passes on to describe his second species, which answers to the character and almost to the words of erythema *gangrænosum*, or that we have just considered. "The other species," says he, "consists in an ulceration of the cuticle, without depth, broad, sublivid, but unequally so; and the middle heals, while the boundary lines advance; yet not unfrequently the part that seemed healed again becomes exulcerated; while the neighbouring parts, which are about to receive the disease, grow tumid and hard, and change from a blackish hue; the disease chiefly attacking the legs."

Import of pustulæ in Celsus, synonymous with φλύκταιναι of the Greeks.

In this passage the words fluid and vesicles are by Celsus named pus and pustulæ; but that he hereby meant vesicles, and an ichorous fluid, the φλύκταιναι of the Greeks, is clear; first, because Celsus thus explains the term in another section of the same chapter; and secondly, because in the ignis sacer, which, as we learn from Thucydides and Lucretius, was a symptom in the plague of Athens, the former has given us φλύκταιναι, or vesicles, as the peculiar character of the eruption. "Yet the body," says Thucydides, "was not outwardly very

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* De Medicin. Lib. v. Cap. xxviii. Sect. 4.

Gen. VI. Spec. IV. Erythema vesiculare. Vesicular erythema.

hot to the touch, nor pale; but reddish, livid, and efflorescing with minute phlyctænæ (vesicles) and ulcers*;" which Lucretius has thus forcibly rendered.

> Et simul ulceribus quasi inustis, omne rubore
> Corpus, ut est, per membra SACER quom diditur IGNIS.
>
> Wide-ting'd with purple dye, and brandish'd o'er
> With trails of caustic ulcers, like the blaze
> Strew'd by the HOLY FIRE.

Hence ignis sacer an erythema.

It is perfectly clear, then, I think, that the IGNIS SACER of the Roman writers was an erythema, chiefly vesicular, and sometimes gangrenous. It is also perfectly clear, that the present, like the preceding, species of erythema is the result of local or general debility, and requires warm and active local applications, and a tonic and bracing regimen.

Medical treatment.

Where the skin is slightly broken, and the acrid fluid oozes through the minute openings, the vesications should be frequently dusted, as already recommended under the second species with chalk, or starch; or, where the latter is too harsh and drying, with a mixture of equal parts of starch and finely levigated calamine; carefully abstaining from all oleaginous or other applications that have a tendency to augment the relaxed state of the fibres.

Found as a symptom or sequel in other complaints.

I have observed that the vesicular erythema is found, at times, as a symptom in plague; it is also occasionally found, in the one or other of its varieties, as a sequel on the exhibition of mercury in irritable habits; and, under this form, has been occasionally denominated by authors erythema *mercuriale*, and hydrargyria, as we shall have occasion to notice still further when treating of syphilis.

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[*] Hist. II. 50.

SPECIES V.

ERYTHEMA PERNIO.

Chilblain.

INFLAMMATION OF A CRIMSON COLOUR, SUFFUSED WITH BLUE; OBSTINATELY ITCHING; CHIEFLY AFFECTING THE EXTREMITIES DURING WINTER.

Gen. VI. Spec. V.

This species offers us the two following varieties:

α Simplex. Simple Chilblain.	The cuticle remaining unbroken.
β Exulceratus. Kibe.	Accompanied with ulceration.

Nose and lips sometimes affected.

The extremities principally affected by the chilblain are the hands and feet; but in very cold climates the nose, ears, and lips are affected also, and the living power is destroyed as completely as by combustion. So correctly has our great epic poet described the power of severe frost:

> The parching air
> *Burns* frore, and *cold* performs th' effect of *fire.*

Proximate cause.

That the pernio or chilblain belongs to the genus erythema is perfectly obvious, not only from its symptoms, but from the character of the age and constitution in which it is chiefly to be met with, and from the stimulant mode of treatment by which alone it is to be cured.

The proximate cause of chilblains is a diminution of the excitability or vital energy of the extreme vessels; and as such diminution is most readily produced in children, or older persons of relaxed fibres, these are most subject to the disease. For though we often meet with

Gen. VI. Spec. V. Erythema Pernio. Chilblain.

it also in strong and hardy boys, it will usually be found that the last, from the natural vigour and courage of their frames, have braved the cold and rigid reign of the winter-season beyond the venture of their schoolfellows.

Treatment.

Local stimulants then are the only applications that will answer; and particularly those which serve at the same time to defend the weakened organ from the severity of the external air. Hence, dog-skin socks worn day and night are useful, and warm diachylon, or Burgundy pitch, spread upon leather, still more so. For the same reason embrocations of spirits of turpentine, opodeldoc, liquor ammoniæ acetatis, or equal parts of vinegar and spirits of wine, will usually be found serviceably. Linnéus recommends bathing the part with diluted muriatic acid, and this has the advantage of being astringent as well as stimulant. The weakened vessels should never be too much distended, and hence, though gentle warmth and stimulants are indispensable, great heat, and especially a near approach to a fire, and more particularly still when very cold, will always be found injurious. When the inflammation becomes ulcerated, or forms a kibe, warm and irritant dressings will alone succeed in effecting a cure; and, if fungous granulations should appear, which they are very apt to do in all sores accompanied with debility, they must be removed by a dressing of the unguentum hydrargyri nitratum, or some other mild escarotic.

The weakened vessels not to be distended.

Hence fire to be avoided.

SPECIES VI.

ERYTHEMA INTERTRIGO.

Fret. Erosion of the Skin.

COLOUR OF THE INFLAMED PART BRIGHT RED; CUTICLE ERODED; THE EXPOSED SKIN OOZING A LIMPID AND ACRIMONIOUS FLUID.

Gen. VI. Spec. VI. Cause.

The fret or erosion which frequently takes place in different parts of the skin from an acrid secretion of the exhalents or sebaceous glands, and particularly behind the ears, about the groins, and around the anus, is usually accompanied with erythematic redness, or inflammatory blush; and is hence generally, and correctly, referred to the present place. It is an erythema with weak vascular action, and often considerable irritability in consequence of such weakness.

Chiefly found during dention.

Discharge offensive.

Cannot be checked too soon.

The most common example of this species is that which takes place behind the ears of children of a delicate habit, or who labour under irritation from teething, or from gross indulgence in luxuries. The discharge is often peculiarly offensive, and hence cannot proceed merely from defective absorption, for it would then be nothing more than saline without fetor. It cannot be checked too soon; for if it continue for a few weeks, or perhaps even less, it may acquire a habit, the suppression of which may run the risk of superinducing some worse disease than itself, as dyspepsy, diarrhœa, or convulsions. The organ affected should be kept well washed to prevent the spread of the morbid secretion, the discharge should be imbibed by dry and scorched rags applied to the part, or starch frequently dusted over it. But the irritability is here best subdued by the tonic and astringent power of many of the metallic oxydes, particularly of cerusse, which is one of the most valuable, as well as one of those in most common use.

Treatment.

GENUS VII.

EMPRESMA.

Visceral Inflammation.

DERANGED FUNCTION OF A VISCERAL ORGAN, MEMBRANOUS OR PARENCHYMATOUS; WITH LOCAL PAIN; FEVER MOSTLY A CAUMA; INFLAMMATION MOSTLY ADHESIVE.

GEN. VII.

General explanation of the genus as importing visceral inflammation. Hitherto expressed by terms terminating in itis.

THE genus of diseases upon which we now enter consists of that numerous collection of visceral inflammations which, from the time of Boerhaave, have been generally distinguished by anatomical terms derived from the organ affected, with the Greek term *itis* added as a suffix, as cephalitis, gastritis, carditis and many others. *Itis* is sufficiently significant of its purpose: it is immediately derived from ἵεμαι, which is itself a ramification from ἕω, and imports, not merely action, "putting or going forth," which is the strict and simple meaning of ἕω, but action in its fullest urgency, "violent or impetuous action." As a suffix, therefore, we shall retain it in its common use, and proscribe it, to prevent confusion, from the few compounds, or proscribe the compounds themselves, in which this common use is departed from; as rachitis, hydro-rachitis, ascites, and tympanites, none of which convey any idea of violent or impetuous action, and some of which are peculiarly marked by a contrary state.

Hence importing a common relation.

This application of a common term in composition to so large a body of visceral inflammations, and the general use of the term for so long a period as that throughout

Gen. VII. Empresma. Visceral inflammation.

which it has been employed, is a sufficient proof that practitioners have discovered between these inflammations other features of resemblance than the general symptoms of inflammatory disorder. In the prosecution of the subject, we shall find that this is the fact; and I have already observed, towards the commencement of the present order, that, with a very few exceptions, the inflammation in all the diseases is of the adhesive kind, and the fever a cauma.

Etymological meaning of empresma.

With a view, therefore, of simplifying, as far as simplicity may be of real use, the present system will, for the first time, comprize the whole of these under one genus, here distinguished by the name of EMPRESMA, or "internal inflammation," a term, in its simple form, employed both by Hippocrates and Galen; and which it seems necessary to revive for the present purpose.

General sympathy of the organs concerned; especially with the stomach.

Many of the organs included under the genus before us, and which we shall presently follow up in their respective order, sympathize with each other, and most of them with the stomach. The necessary consequence of which is, that the constitution is disturbed generally, though in very different degrees according to the organ affected; or, in Mr. Hunter's opinion, according to the different degree of its connexion with the stomach.

Inflammation in the vital organs more extensively felt than in other organs.

If the heart, the lungs, or the brain be inflamed, whether primarily or secondarily, as by sympathy, the stomach is peculiarly influenced, probably from the essential importance of these organs to the life itself (as all the vital organs, or those essential to the life, maintain a very close degree of affinity); and the disease, originating in any of these, has, in consequence, a more violent effect upon the constitution than the same quantity of inflammation would have if it were not in a vital part, or in one with which the vital parts do not sympathize. The pulse, in such cases, is much quicker and smaller than when inflammation takes place in a common part, as a muscle, cellular membrane, or the skin. The progress, moreover, when the attack is so violent as to prove fatal, is, generally speaking, far more rapid than

More rapid and more fatal.

GEN. VII. Empresma. Visceral inflammation.

in other parts; so that, at its very beginning, it has the same effect upon the constitution as a farther advance of an inflammation in other organs that is equally sure of proving fatal in its result. The debility commences early, because the inflammation itself is immediately interfering with actions essential to the life; and, as already observed, the sympathy between these organs is peculiarly close, insomuch so as almost to make any single action common to the whole*.

Inflammatory symptoms vary in different organs. Inflammation of the brain.

In inflammation of the brain the pulse varies, perhaps, more than in inflammation in any other part; and we must rather depend upon other symptoms than upon the state of the pulse. It is sometimes quick, sometimes slow, sometimes depressed, sometimes full, according as the disease is characterized by acute pain, delirium, stupor, or other concomitants.

Inflammation of the heart.

When inflammation is seated in the heart its action becomes extremely agitated and irregular. When in the lungs, the heart, possibly from sympathy, does not seem to allow of a free diastole.

Inflammation of the stomach.

If the stomach be inflamed, the patient feels an oppression and dejection through all the stages of the disease. The vital energy, or simple animal life, seems to be impaired and lessened, in the same manner as sensation is lessened when the brain is injured. The pulse is generally low and quick; the pain obtuse, but urgent and overwhelming; so that the patient can hardly bear up under it.

Inflammation of the intestines.

If the intestines be affected, the symptoms are nearly of the same kind, especially if the inflammation be in the upper part of the canal; but if it be seated in the colon, the patient is more roused, and the pulse is fuller than when the stomach itself is inflamed.

Inflammation of the uterus.

If the uterus be the organ attacked, the pulse is extremely quick and low: if one of the testicles, the pain is depressing, and the pulse quick without much

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* Hunter, On Blood, &c. p. 325.

Gen. VII. Empresma. Visceral inflammation. These symptoms contrasted with those of other parts less essential to life.

strength. With the uterus, the testicles, and the intestines the stomach peculiarly sympathizes; often, indeed, as much as if itself were primarily affected. If we contrast these species of inflammations with those that attack parts not very essential to life, but with such a degree of violence as to produce universal sympathy and affect the vital functions, we shall find that in the latter the pulse is fuller and stronger than common; and the blood is pushed further into the extreme arteries. The attack usually commences with rigor; the patient then becomes somewhat roused because the action of the part is roused, and the effects on the constitution are not as yet such as to impede the operations of the vital organs. Much, however, will still depend upon the nature of the parts, whether active as muscles, or inactive as tendons; as also upon the situation of the same description of part, and especially upon the character of the constitution: for if the last be extremely irritable and weak, as in many women who lead sedentary lives, the pulse may be as quick, hard, and small, even at the commencement of the inflammation, as in inflammation of the vital parts. The blood, moreover, may be sizy, but will be loose and flat on the surface.

Having premised these general remarks, we are the better prepared for examining the relations which the numerous species belonging to the present genus bear to each other; and satisfy ourselves with a more summary account of several of them than would otherwise be necessary.

SPECIES I.

EMPRESMA CEPHALITIS.

Inflammation of the Brain.

PAIN IN THE HEAD; AVERSION TO LIGHT; FACE MORE OR LESS FLUSHED; CAUMA.

GEN. VII. SPEC. I. General pathological remarks.

THE pathology of cephalitis, or inflammation of the brain, is, in some degree, obscure and difficult, from the difference which occurs in several of its secondary or concomitant symptoms; occasioned partly, perhaps, by the difference of its exciting cause, partly by the particular portion of the organ that is primarily or chiefly affected, and partly by circumstances which seem to baffle all research. From this occasional difference of symptoms some nosologists have endeavoured to establish as many distinct affections, and have hence multiplied a single specific disease into a considerable number of distinct species, and even genera, and treated of it under a fearful host of distinct names: and hence the disease before us has been described, not only under the term cephalitis, but under those of phrenitis, paraphrenitis, phrenismus, sideratio, siriasis, sphacelismus, and typhomania, calentura, and a great many others, which have burthened the medical vocabulary, and perplexed the medical student.

Disease may commence in membranes or the substance of the brain. Original seat how distinguishable.

The disease may commence in the meninges, or membranes of the brain, or in the substance or parenchyma of this organ; and if it were to confine itself strictly to the part first affected, instead of spreading from one part to another, there would perhaps be no great difficulty in determining, from the symptoms before us, its direct and actual seat: for while membranous and muscular inflammation, before the access of gangrene, is accompanied with an acute and rousing pain, great

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heat, and a pulse considerably and permanently quickened, parenchymatous inflammation is rather distinguished by a heavy, and often a stupefying, pain, a slight increase of heat, and a pulse irregularly quickened sometimes sinking even below its natural standard [*].

Now both these conditions are occasionally found in different cases of cephalitis; and we may hence infer that in the one instance the disease is seated chiefly, if not altogether, in the meninges, and in the other in some part of the substance of the brain itself, thus presenting to us the two following varieties:—

α Meningica. Phrenzy. Brain-fever.	Pain in the head acute; intolerance of light and sound; cheeks permanently flushed; eyes red; watchfulness; delirium; pulse rapid.
β Profunda. Deep-seated inflammation of the Brain; Acute Dropsy of the Head.	Pain in the head obtuse; cheeks irregularly flushed; pulse irregularly frequent; eyes oblique; sleep heavy but unquiet, and occasionally interrupted by screams. Chiefly common to children.

The varieties apt to run into each other:

The above clear and distinctive marks, however, by which the two varieties are separated from each other in exact cases are not often to be met with; as each, for reasons already given, is apt to assume something of the character of the other. And hence they have hitherto escaped the attention of all our nosologists, even of those who have subdivided inflammation of the brain into the greatest number of distinct genera or species of disease; whilst Vogel expressly declares that all the most acknowledged symptoms of inflammation of the brain are equivocal, not only as to a distinction of one morbid part from another, but as indicative of inflammation in any part; and Dr. Cullen asserts in a note subjoined to his *generic*

and hence, not sufficiently noticed by nosologists.

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[*] Hunter, On Blood, &c. p. 288, 289.

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Treated of too generally by Cullen.

definition (for he advances the disease to the rank of a genus, and a genus too without a species or a specific character), that there are no symptoms capable at all times of distinguishing, with certainty, inflammation of the brain from inflammation of its meninges. On which account he deviates from the more complicated arrangements of Sauvages, Linnéus, and Sagar, and includes several of their genera in his own definition, which runs in more general terms as follows: "pyrexy severe; pain of the head; redness of the face and eyes; intolerance of light and sound; watchfulness; fierce delirium or typhomania."

Expediency of the present subdivision;

There is so much correctness in this remark of Dr. Cullen's, notwithstanding the error of his arrangement, that the present author yielded to it in the first edition of his Nosology, and introduced cephalitis, not indeed as a naked genus without a specific character, but as a single species without enucleating its varieties; or, in other words, without treating of deep-seated inflammation, constituting acute internal dropsy of the brain, separately from inflammation of the head generally. It may, perhaps, be doubted, whether acute dropsy of the brain ought to be regarded as an idiopathic inflammation at all, and consequently whether the present is the proper place for it: but the reasons which will immediately be advanced will, I trust, settle this point completely. And, as, upon a closer attention to the subject, notwithstanding Dr. Cullen's remark, I am induced to think that there are cases in which parenchymatous or deep-seated inflammation may be distinguished from meningic, I have so far deviated from the first arrangement as to give these distinctions under the form of the two preceding varieties.

though the distinctive marks cannot always be traced.

I admit, nevertheless, with Dr. Cullen, that there are no symptoms capable *at all times* of distinguishing, with certainty, inflammation of the substance of the brain from inflammation of its meninges; and only contend that the distinction may be drawn in certain cases in which the disease is simple, and the characters strong and unmixed; and strikingly indicative of membraneous or parenchymatous inflammation, according to the general rules just laid down upon this subject.

I believe this simplicity of appearance is more frequently to be traced in meningic than in profound or parenchymatous cephalitis; or in other words, that in primary inflammation of the substance of the brain, the meninges are more disposed to partake of the affection either by continuous action or sympathy, than the substance of the brain is in primary inflammation of the meninges. And hence those nosologists that describe but a single species, or *genus* of this disease, as it has been often though incorrectly denominated, as Vogel, Cullen, and Parr, lean chiefly to the meningic variety, and define it by characters of great vehemence or acuteness, so as in reality to limit themselves to this variety alone. Yet as the symptoms do not always nor even most frequently mount up to this aggravation, in consequence of the disease more commonly originating, or being more commonly seated, in the substance of the brain itself than in its membranes, they have all been dissatisfied with their respective definitions; and instead of enlarging or modifying their terms to meet the distinctive phænomena as they vary according to the seat of the disease, have endeavoured to apologize for their own inaccuracy, by representing these phænomena as irreducible and anomalous.

These marks discoverable more frequently in meningic than in deep-seated cephalitis.

Whence the first is universally described:

The first variety, therefore, exists in the judgment, and even in the description of all writers, who, where they have not entered into more minute subdivisions, have given it as the general character of the complaint.

and given as a general character of the disease.

The existence of the second variety, or in other words, the propriety of regarding what has hitherto been denominated acute or internal hydrocephalus as a variety of cephalitis, requires to be examined somewhat more at length.

Reasons for admitting the second variety.

The absurdity of the usual arrangement of internal hydrocephalus, and of contemplating it as belonging to the ordinary family of dropsies with which it has scarcely

Absurdly regarded as belonging to dropsies.

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a common symptom, has long been felt by pathologists, and is directly noticed both by Sauvages and Cullen. But the question is, if we remove it from its usual situation, where are we to place it? if we do not regard it as a dropsy, in what light are we to contemplate it at all? and how are we to regulate our treatment of it? The professor of Montpellier tells us that, according to its symptoms, it is to be ranked in the comatose, spasmodic, or some other tribe of diseases: distinctly importing that, in his own opinion, he could not refer it to any single division in his very extensive classification. Dr. Cullen's reply is, that it is an evident and idiopathic species of apoplexy, and ought to take its place under that genus; and he has hence distinguished it by the appellation apoplexia *hydrocephalica*, and in this manner assigned it "a local habitation and a name." In reference to this assignment he observes, however, that, in a nosological work, it is difficult to collate exactly diseases that in their progress assume a changeable form, and hence to allot a perfectly fitting place to hydrocephalic apoplexy. Yet I prefer, says he, placing this disease under the head of apoplexy, to placing it under that of hydrocephalus (dropsy of the head); first, as it differs extremely from the symptoms of sensible (external) dropsy of the head; and next, as in its proximate cause, and at length in its symptoms, it bears to apoplexy as near a relation as possible.

How far an apoplexy.

Mistake of the effect for the cause.

Dr. Cullen evidently regarded the effusion or dropsy in the ventricles of the brain as a mere effect of the disease, rather than as the disease itself: yet the drowsiness, or heavy sleep, or whatever else there is a-kin to apoplexy, and which he contemplated as the proximate cause of the disease, and consequently as the disease itself, is a still more remote effect than even the effusion, for it is probably the mere result of such effusion. In truth, it is only necessary to run over Dr. Cullen's specific definition of this disease, to see how very little it has in common with apoplexy. This definition is as follows: "apoplexy arising gradually; affecting infants, and the

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the age below puberty, *first* with lassitude, feverishness, (*febriculâ*), and pain of the head; *afterwards* with a slower pulse, dilatation of the pupil, and somnolency." The definition includes two stages of disease, if not two distinct diseases, a primary and secondary: and it is only in the second stage or secondary disease, the mere result of the first, that it bears any analogy to apoplexy.

First and leading symptoms pyretic.

The first and leading symptoms are evidently those of pyrexy, which is therefore the fundamental part of the disease; and had not Dr. Cullen been in some degree influenced by system, he would probably have coloured these symptoms a little more highly, as he might have done without any departure from the truth. And hence, while Dr. Parr, Dr. Young, and a few others, have adhered to Dr. Cullen's view of the subject, the great body of pathologists have been dissatisfied with it, and have correctly carried internal hydrocephalus over to the class of pyrexies, and regarded it as a fever or an inflammation. Thus in Dr. Macbride's table it occurs as a nervous fever, under the title of febris continua, nervosa, hydrocephalica: and more simply under that of febris hydrocephalica, in Professor Daniel's edition of Sauvages; whilst Dr. Quin of Dublin, Dr. Withering, Dr. Rush, Professor Martini, and a host of other writers of authority, have contemplated and treated it as an inflammation,—an inflammation of the brain,—and consequently a cephalitis; the fever being regarded as a mild and somewhat irregular cauma, and the effusion into the ventricles of the brain as a mere effect of the inflammation.

By whom regarded as an inflammation.

Inflammatory fever not always acute, and rapid.

This is not the only instance, indeed, in which cauma assumes a mild character. In various other species of empresma it is often found to do the same, of which the reader will find an interesting example under the species laryngitis, a few pages further on: and of which every practitioner is meeting with daily instances in pneumonitis, and especially in inflammation of the parenchyma of the lungs producing suppuration. The general organ of the brain, however, seems to have less irritability than

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almost every other organ when in a state of health, and we often find it to be little irritable in a state of lesion; since nothing is more common than for a bullet, or the broken point of a knife, sword, or other weapon, to be forcibly driven into it, and buried there for weeks, months, or years *, in one instance eleven years †, not only without danger, but sometimes with little inconvenience.

Still more lately by Dr. Porter.

In the third number of the Medico-Chirurgical Journal, there is an excellent paper upon the subject before us, by Dr. Porter of Bristol, which commences with a very correct pathological view of the disease, minutely coinciding with the present arrangement, and confirming this view by a variety of strongly marked and well selected cases. And I am glad to avail myself of Dr. Porter's authority in following up this second variety of cephalitis, into a distinct and extended illustration.

Proofs derived from dissection.

In few words both varieties not only evince symptoms of inflammation during the progress of the disease, but anatomical proofs of the same upon dissection after the disease has terminated fatally; in the meningic subdivision the complaint commencing in and being ordinarily confined to the meninges or membranes of the brain, the blood-vessels chiefly affected with inflammatory action being the meningic branches of the external carotid; and in the deep-seated subdivision the complaint commencing in and being ordinarily confined to the posterior part of the brain, the blood-vessels chiefly affected being minute branches of the basilary artery. It is nevertheless possible, and appears often to become a fact, from the anastomoses that are occasionally found between different arteries of the brain, from the continuous spread of morbid action from neighbouring sympathy, or from some unknown cause, that either variety may pass still deeper or wider into the substance of the brain, and make an approach towards the other;

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* Gooch's Cases. Hoegg. Diss. Observ. Medico-chir. Jen. 1762.

† Majanet, Journ. de Med. Tom. XLI. 65. Id. Tom. XX. 553.

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and hence the mixt, anomalous, and even contradictory symptoms, by which the specific character is sometimes distinguished; a striking example of which, but too long to be quoted, is to be found in the Edinburgh Medical Commentaries*.

"In three cases," says Dr. Sagar, "I have found suppuration of the brain after death; in each of which the patient during the progress of the disease breathed sonorously but without stertor†. Whether in the case of effusion between the membranes, the fluid be confined, where the disease commences in the meninges, to the space between the dura-mater and the arachnoid tunic, and where it commences in a contiguous part of the brain, to that between the arachnoid tunic and the pia mater, as asserted by Dr. Porter, I have not been able to determine."

Hence various anomalies explained.

We may hence explain why the symptoms of irritation and oppression should so much vary as we find they do in different cases; why there is sometimes no delirium and at other times a considerable degree; why the delirium is sometimes furious and impetuous, constituting the *delirium ferox* of medical writers; why in other instances it is mute or muttering, designated by the phrase *delirium mite;* and why there should occasionally occur examples of that comatose or heavy stupor to which the Greeks gave the name of typhomania; as also why the pain and pyrectic symptoms should vary from great acuteness to a mere disquieting head-ache and slight increased action.

α E. Cephalitis meningica. Phrensy. Brain-fever.

Diagnostics.

PHRENSY is not often found as an idiopathic complaint, at least in this country; though it is a frequent attendant upon other diseases, as synochus, worms, various exanthems, trichoma, hydrophobia, injuries of the brain, and severe grief. It sometimes makes a near approach to mania, but is easily distinguished by the nature of the exciting cause, where this can be ascertained, the ab-

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* Vol. IX. p. 164.

† Syst. Morb. Sympt. Cl. XI. Ord. III. Gen. xii.

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ruptness of the attack, and the violence of the fever; added to which there is in phrensy, for the most part though not always, a hurry and confusion of the mental powers, a weakness and unsteadiness of mind, which is rarely or perhaps never to be met with in genuine mania. It sometimes, however, runs into mania, of which Stoll has given a singular instance in a chronic case that continued for nine weeks before it assumed this change*.

Remote causes.

The remote causes are those of inflammation in general applied to the organ affected; such as sudden exposure to cold after great heat; cold liquors incautiously drunk in the same state; inebriation and especially from spirits; exposure of the naked head to the rays of a vertical sun; violent passions of the mind; obstructed menstruation; and various kinds of poison.

Remedial treatment.

The cure of phrensy must be attempted in the same manner as that of inflammation in general, or rather as the cure of inflammation by resolution; for resolution is the only means by which a cure can be effected in this case. Copious and repeated bleedings must here therefore hold the first place; and the nearer the blood is drawn from the affected organ the better chance it gives us of success. The temporal arteries and the jugular veins have hence been recommended as the most effectual vessels to open; but for various reasons it is better to begin with drawing blood liberally from the arm, and afterwards by a free application of leeches to the temples. The head should be shaven as soon as possible, and kept moist with napkins wrapped round it dipped in cold vinegar, or equal parts of water and the neutralized solution of ammonia; or, which is still better, with ice-water: all which is preferable to blistering, which is too apt to increase the morbid excitement; and has the authority of Hippocrates, who was in the habit of applying cold epithems, not only in inflammation of the

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* Rat. Med. Sect. III. p. 179.

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brain, but even of the abdominal viscera[*]. The bowels should be thoroughly evacuated, and even stimulated at first by calomel alone or mixed with jalap, and afterwards kept open by cooling saline aperients: and nitre should be given in moderate quantities, repeated as often as the stomach will bear; which is often considerably assisted by the tincture or infusion of digitalis. The chamber should be cool and airy; and no more light be admitted than the eyes can endure without inconvenience.

Sometimes but little disturbance of the intellect. Illustrated.

I have said that furious delirium, though generally laid down as a pathognomic of this variety of cephalitis, does not always occur; and in a very strongly marked case in which I was consulted about three years ago, the mental powers were not much interfered with. The patient was a lady of delicate habit, about thirty years old, who had caught cold by lying on an Indian mat, spread on the lawn, in the midst of a hot July. The first symptoms were those of inflammatory fever, with an acute pain in the head, which was not so much attended to as it ought to have been. I did not see her till the second or third day of the attack, when she had been bled only once, and that not very freely; though the bowels had been freely evacuated. At this time the pain in the head was intense, with an intolerable acuteness of hearing and sight, insomuch that the slightest light and sound, even the humming of a fly, were insupportable. The face was flushed; the eyes swollen; the head externally hot all over as a furnace; whilst a violent throbbing or thumping pulsated within. Free bleeding now, though repeated till the system was weakened to its lowest ebb, produced little or no relief. The hair was immediately cut close to the head, and the entire scalp covered with napkins thoroughly wetted with ice-water, and renewed every half hour, by which time they became quite hot. This afforded some relief, as did also a large

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[*] Περὶ Νουσῶν, p. 484.

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bladder about half filled with pounded ice, and folded over the head like a night-cap. The fever, however, maintained itself, with little intermission, for a fortnight, during which time I advised the temporal artery to be opened once, and leeches applied to the temples several times; the bowels were kept sufficiently loose; and nitrate of potash, tincture of roses, lemonade, grapes, and other cooling medicines, were chiefly depended upon.

As the weakness increased the mind wandered a little for a few minutes at a time, but never totally, nor without being easily recalled; but every attempt to sleep produced, at this period, the most horrible ideas, accompanied with cold sweat and syncope on waking; even though the miserable dozing had continued only for a few minutes. This distressing state was relieved by ten grains of the compound ipecacuan powder, which produced quiet sleep for several hours. But opiates had hitherto uniformly disagreed with the patient's constitution, and did the same now, throwing out a rash over the entire surface of the body that produced an intolerable itching, and was accompanied with a deadly nausea at the stomach; and this too, after the first dose, without any relief to the state of the head. They were tried in various forms, but had constantly the same effect; and we were obliged to relinquish it. Hyoscyamus and other narcotics were substituted, but proved of no service. Camphor, taken freely both in pills and solution, allayed in some degree the horror of the sleeping ideas; and as the fever began to subside, cascarilla, with sulphuric acid, appeared also to be serviceable; at the same time Madeira wine was allowed in small quantities in acidulated barley-water. Nothing, indeed, but gentle stimulants rendered the sleep supportable; for without these no sooner were the eyes closed, than the pulse became quicker and feebler, cold sweats succeeded, the most frightful and agonizing train of ideas usurped the brain, and the patient woke and fainted; evidently proving that the debilitated brain was now nearly torpid and incapable, Gen. VII. Spec. I. α E. Cephalitis meningica. Phrensy. Brain fever.

without adventitious excitement, of secreting a necessary supply of sensorial fluid. And, as this was not the case during wakefulness, we have a clear proof also that the stimulus of the will answered the same purpose at this period. This distressing affection ceased only by very slow degrees, and merely in proportion as the system acquired strength. Something of the same kind, however, was long felt after eating, at which time the sensorial power being peculiarly concentrated in the stomach to assist the process of digestion, every other organ was in a state of comparative exhaustion. It was, indeed, many months, before the brain recovered its habitual ease of action, and was free from all inconvenience.

β E. Cephalitis profunda. Deep-seated cephalitis. Internal, or acute dropsy of the head.

PROFOUND OR DEEP-SEATED CEPHALITIS, or, as it is more commonly called, ACUTE OR INTERNAL HYDROCEPHALUS, so far as examinations after death may be depended upon, is almost always accompanied with effusion into the ventricles of the brain; on which account indeed the name of HYDROCEPHALUS has been applied to it, though most incorrectly, for I cannot but agree with Dr. Porter that it has no other symptom in common with chronic or idiopathic HYDROPS CEREBRI, and that such a generalization has been a cause not only of much confusion in nosology, but of much mischief in practice.

Sometimes found in adults, but mostly in infants.

This disease is sometimes found in adults, but mostly in young subjects, and chiefly from early infancy to seven years of age, particularly in those of a fair complexion. After seven years the disease is comparatively rare.

Diagnostics.

The symptoms commence obscurely, and are those of irritation produced by worms: as irregularity, and especially costiveness in the bowels; listlessness; impatience; knitting the brows into a frown; heaviness of the head, which organ the patient is always desirous of reposing in a chair or some other place; irregular fever; and, occasionally, violent and deep-seated pain in the sensory shooting from temple to temple, or across the forehead; frequently accompanied with sickness. The pulse is irregularly quick; the sleep unquiet, and interrupted by screams; and the eye has a look peculiarly oblique

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or squinting. These three last symptoms are usually regarded as pathognomic. The eye, however, instead of taking an oblique direction, is sometimes turned upwards: but either change is the result of spasmodic action; the pupil is often at first contracted, but at length unalterably dilated. The pyrectic symptoms appear chiefly in the evening; but sometimes at other periods, for in this respect there is a strange and unaccountable anomaly; and as the disease advances they increase, and the stimulus of light becomes highly painful; shortly after which many of the symptoms are apt to assume deceitfully for a few hours, perhaps a day or two, a milder character; but the pulse evinces less power, stupor supervenes, occasional convulsions, more or less general, follow, and death very speedily closes the scene.

The first symptoms inflammatory.

I have thus given a brief sketch of the symptoms that principally mark the progress of this disease in all their versatility; and it is this versatility that has produced the chief differences of opinion that have been entertained concerning it, to which we have already adverted.

The first symptoms are unquestionably rather those of irritation than of compression, as is obvious from their resemblance to those of invermination. The venous system in children, indeed, and especially the veins of the head, are not disposed to plethora, which is rather a characteristic feature of advanced years; nor does the small quantity of water which is often found in the ventricles seem adequate to the violence of the effect; and we have hence very strong grounds for supposing that the collection of water is only a secondary disease, dependent upon some previous idiopathic affection in some part of the brain; and that affection, as Dr. Rush has long ago very ably shown, an inflammation. It has indeed been observed, in opposition to this opinion, that acute hydrocephalus is less frequently to be met with in strong and vigorous, than in weak and sickly children, dropsy being here, as in other species, far more commonly an effect of debility; whilst it is in strong and vigorous children alone that we have reason to expect

and those of oppression only secondary.

Examination of the opposite opinion.

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inflammatory action in the brain, as in any other organ. Bleeding it is admitted has been serviceable at times, but we are told that it has often been unproductive of any benefit whatever; and that it is possible to account for its occasional utility by other means than its taking off inflammatory action, as by simple removal or diminution of venous congestion. Yet we have already observed that venous congestion is not commonly a disease of infancy, but of later life; that the first symptoms are those of irritation; that post-obit examinations have very generally shown an inflamed state of the arteries; and that the fluid accumulated is not sufficient in many instances of itself to account for the symptoms by which the disease is characterised.

Therapia.

The mode of practice, in consequence of this discrepancy of opinion, has been extremely undecided; whilst many practitioners are so despondent as to fear that every plan is equally unavailing. It has fallen to the author's lot, however, to see several patients recover both in infancy and verging towards adult age, who had all the characteristics of the disease, and were unquestionably labouring under it.

Generally accordant with that for the preceding variety.

Contemplating it as a variety of cephalitis, he has uniformly pursued the general plan recommended under the preceding variety, and to this practice he can only ascribe whatever degree of success he has been fortunate enough to meet with.

Blood should be drawn freely from the nape of the neck by cupping or leeches: the head should be shaven, and napkins dipped in ice-water, or vinegar and water, be applied to the posterior part of it, and be changed every hour or half hour. The bowels should be freely purged with calomel, or calomel and jalap: an easy diapnoe should, if possible, be excited, and maintained on the skin; the chamber should be large and well ventilated; and when it may be right to stimulate the head, epithems of neutralized ammonia should be preferred to blistering. The value of digitalis is doubtful; when used early it has seemed serviceable, but it should be

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avoided in the second stage of the disease. In later life than infancy, where it has been necessary to draw blood repeatedly, I have occasionally prescribed opening the temporal artery with great success: for a small quantity, as six or eight ounces of blood, drawn in this way, will often answer the purpose of double or treble the quantity abstracted from the arm. In a young lady of nineteen, labouring under very prominent symptoms of this disease, I found the violent and deep-seated pain in the head cease instantly; and the pulse sink from seventy to forty-four, as soon as a tea-cup-full of blood only was taken away in this manner.

Temporal artery sometimes opened with great success.

Mercury externally and internally in large doses.

Mercury employed both externally and internally, in a quantity sufficient to excite a ptyalism, has also been used in many instances with great success, both among adults and infants, but particularly among the latter. Dr. Percival gives the history of a child of his own, aged three years and a quarter, in which a perfect cure was obtained by this, and nothing else. In forty-eight hours signs of amendment appeared, and in six days the child was well; during which time thirteen grains of calomel had been taken, and seven scruples of strong mercurial ointment had been rubbed into the legs *. Dr. Dobson of Liverpool employed quick-silver in the same double plan, and asserts that he found it equally useful, and most strikingly so in the following case. Four children of the same family had evinced this disorder in succession; three had fallen victims to it under a different treatment: one between three and four years old, was subjected to the mercurial plan of calomel and inunction. In forty-eight hours a ptyalism was excited, the symptoms abated, and the child recovered †.

In adults the ordinary proportion is ten grains of calomel and a drachm of strong mercurial ointment every

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* Edin. Med. Com. Vol. vi. p. 224.

† Id. vi. p. 221.

night. Under this treatment various cases of success are recorded in the Edinburgh Medical Journal. Gen. VII. Spec. I.

SPECIES II.

EMPRESMA OTITIS.

Ear-ache.

SEVERE PAIN IN THE EAR; TENDERNESS UPON PRESSURE; DEAFNESS OR CONFUSION OF SOUNDS.

Gen. VII. Spec. II.

This is a distressing rather than a dangerous disease; but the fever is sometimes violent, and delirium has occasionally been a consequence. It is often produced by cold, and hence frequently a symptom of catarrh: and is still more commonly, perhaps, occasioned by some exotic substance which has accidentally entered into the ear, as a small piece of ragged bone *, a cherry-stone †, a worm, an insect, or the larve of an insect, as of an ant, a spider, a fly, or a cricket; of all which we have a variety of curious histories in the medical journals ‡. In a few rare instances the inflammation has extended to the brain, affecting the membranes and surface of the organ, and coating them with coagulable lymph, pus, or both; while even the temporal bone of the affected side has become carious. A case of this last kind is related by Dr. Powell in the Medical Transactions. The patient was a young gentleman of sixteen, who had been attacked with otitis once or twice before. The pain was intense, but the pulse never exceeded seventy-two: yet the dis-

Causes.

Has sometimes extended to the brain: sometimes affected the temporal bone.

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* Hagendorn, Cent. I. Obs. 64.

† Fabric. Hildan. Cent. III. Obs. 4.

‡ Stalpart Van der Wiel. Maget. Journ. de Med. Tom. LXIV. Moehring, Obs. 21. Samml. Medinischen Wahrnehmungen, B. VIII. p. 37.

Gen. VII. Spec. II. Empresma Otitis. Ear-ache.

ease proved fatal. The intellect was at no time disturbed *.

Treatment.

The general remedies for inflammation are here to be resorted to; and particularly warm, narcotic fomentations. Blisters behind the ear have often afforded relief; and for the same reason stimulant errhines and sialagogues: which, by evacuating the mucous follicles of the Schneiderian membrane, and the salivary glands, produce an influence on all the neighbouring parts, and often on the whole of the vessels of the head. And hence headaches, opthalmies, and pains in the ear, are in many instances equally relieved by these applications, and were often employed by Dr. Cullen for this purpose †.

When worms or the larves of insects are the irritating cause, a few drops of oil of almonds introduced into the ear will readily suffocate them.

SPECIES III.

EMPRESMA PAROTITIS.

Mumps.

PAINFUL UNSUPPURATIVE TUMOUR OF THE PAROTID GLANDS, OFTEN EXTENDING TO THE MAXILLARY: CONSPICUOUS EXTERNALLY; OFTEN ACCOMPANIED WITH SWELLING OF THE TESTES IN MALES, AND OF THE BREASTS IN FEMALES.

Gen. VII. Spec. III. How differs from parotid phlegmon.

THE parotid glands are subject to a troublesome, and sometimes a fatal phlegmon, which we have already noticed under the name of PHLEGMONE *parotidéa*. The inflammation before us is altogether of a different kind;

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* Vol. v. Art. xvi. p. 212.

† Mat. Med. Vol. II. p. 436. 442.

GEN. VII. SPEC. III. Empresma Parotitis. Mumps.

it is more extensive, more painful, and rarely tends to suppuration. In our own country it is vernacularly called MUMPS, and in Scotland BRANKS.

Description.

The tumour, though sometimes confined to one side of the neck, more usually appears on both: it is at first moveable, but soon becomes diffused to a considerable extent. It increases till the fourth day, and often involves the maxillary glands in the inflammation; is evidently contagious, and often epidemic. After the fourth day it gradually declines; and for the most part there is but little pyrexy, or need for medical aid; avoiding cold, and a brisk purgative or two being all that is called for. The sympathetic action of the testes and the mammæ is most conspicuous towards the decline of the inflammation. And, in many instances, it is by no means an unfavourable sign; for it has been occasionally found that where the sympathy has not been manifested, or the glandular swelling has been suddenly repelled, the symptomatic fever has been greatly exacerbated, delirium has ensued, and even death has closed the scene. Where there is any danger of such a result, the swelling should if possible be brought back or sustained by stimulant cataplasms or blisters. Dr. Hamilton has in several cases observed this sympathetic influence operating alternately: and mentions more than one instance in which after a very considerable enlargement of the testicle, upon the cessation of the disease, this organ entirely wasted away, insomuch that the tunica vaginalis became an empty bag *.

Sympathy of the testes and mammæ, by no means unfavourable:

Sometimes alternant.

In advanced life parotitis is sometimes apt to run into a chronic form, accompanied with very mischievous symptoms; in which state it is denominated a malignant parotid. This is more especially apt to take place in females when menstruation is on the point of ceasing, and the general action of the system labours under some disturbance. The tumour should, if possible, be carried off by leeches and cooling repellents: for if it proceed

Malignant parotid.

How to be treated.

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* Edinb. Transact. 1773.

Gen. VII.
Spec. III.
Empresma
Parotitis.
Mumps.

to suppuration, which it tends to though very slowly, the ulcer rarely heals; usually degenerating into a foul offensive sore, that sinks deeper and spreads wider, resisting all medical treatment, and at length undermines the constitution, and destroys the patient. Vomits, frequently repeated, have in this case been found, highly serviceable: and those of the antimonial preparations are to be preferred to ipecacuan. They maintain a longer action, and determine more effectually to the surface, or rather to the excernents generally.

SPECIES IV.

EMPRESMA PARISTHMITIS.

Quinsy.

REDNESS AND SWELLING OF THE FAUCES; WITH PAINFUL AND IMPEDED DEGLUTITION.

Gen. VII.
Spec. IV.
Symptoms.

This is the squinsy, or squinancy of our old writers; the cynanche, or angina of medical books. Paristhmia from παρὰ and ἰσθμὸς, literally *morbus faucium*, or *throat-affection*, is the term employed by Hippocrates, and is only varied to paristhmitis, in the present system, in consonance with the general termination of all the species belonging to the genus before us. The term was used among the Greeks, as on the present occasion, in a specific sense: though the later Greek physicians gave different names to its different varieties: and hence we meet with cynanche, synanche, and parasynanche; the common signification of all which is *angina* or strangulation, while the prefixes cy- sy- and parasy- are of doubtful meaning, as I have further observed in the preliminary dissertation to the Nosology. Aetius attempted to justify *cynanche*, but Cælius Aurelianus, and Paulus, used

Gen. VII.
Spec. IV.
Empresma Paristhmitis.
Quinsy.

synanche after Celsus. The Latins employed angina in the same extent as Hippocrates did paristhmia; quinsy is used in a parallel latitude among ourselves. Sauvages conjectures, and there is some ground for the opinion, that the synanche of the Greeks was the *common* quinsy of the present day, the parithmitis *tonsilaris* of the system before us; their parasynanche, the quinsy of the pharynx, paristhmitis pharyngea; and their cynanche, croup, or p. trachealis.

Quinsy presents itself to us under three varieties; the common inflammatory sore-throat; the ulcerated or malignant; and the sore throat that peculiarly attacks the pharynx.

α	Tonsillaris. Common Quinsy. Inflammatory sore throat.	Swelling of the mucous membrane of the fauces, and especially of the tonsils; redness florid; fever a cauma.
β	Maligna. Ulcerated; or Malignant sore throat.	Redness crimson; with ulcerations covered with mucous and spreading sloughs, of an ash or whitish hue: fever a typhus. Frequently epidemic; generally contagious. Found often as a symptom in rosalia, or scarlet fever.
γ	Pharyngéa. Pharyngic Quinsy.	Redness florid, and especially at the lower part of the fauces: deglutition extremely painful and difficult: fever a cauma.

α E. Paristhmitis tonsillaris.
Common quinsy.
General character.

In the first variety or COMMON QUINSY, the swallowing is, for the most part, greatly impeded: and the speech, and sometimes even the respiration rendered highly troublesome: the mucus is excreted sparingly, and consequently there is a considerable clamminess in the mouth; and the pain sometimes spreads to the ears. The disease is never contagious, and though violent while it lasts, is comparatively of short duration. It terminates by reso-

Gen. VII. Spec. IV. α E. Paristhmitis tonsillaris. Common quinsy.

lution, or suppuration; hardly ever by gangrene; though a few sloughy spots sometimes appear upon the fauces.

Causes.

The usual cause is cold; and it is hence found most frequently in spring and autumn, when vicissitudes of heat and cold are most common. It is supposed to affect particularly the young and the sanguine—but, in my own practice, it has occurred as often at other ages and in other temperaments. When it has been re-produced several times within short intervals of each other, it is apt to establish a peculiar diathesis or habit, so as to be excited readily and by very slight occasional causes.

Treatment.

If attacked by a medical process early, much benefit has been derived from astringent and acid gargles, and vapours inhaled by any simple machine for this purpose. Blisters to the throat or behind the ears, ought also to form a part of the curative plan; and if bleeding be had recourse to, it should be by scarification or leeches applied to the tonsils or fauces. An early use of leeches I have often found highly successful. Cooling purgatives, and a low regimen should also enter into the general plan of treatment. If suppuration cannot hereby be prevented, the better way will be to expedite this termination by the steam of warm water, or water impregnated with the leaves of rosemary or chamomile: and when the fluctuation is clear to the touch, if the abscess do not of its own accord break readily, it ought by all means to be opened with the lancet.

Process in case of suppuration.

Singular terminations.

In a few instances the suppuration has pointed and broken externally, and the termination has been favourable *. And, occasionally, from the extent and violence of the inflammation, there has been so much danger of suffocation, that it has been found necessary to make an opening into the trachea †: which has been done sometimes as high as the larynx, and sometimes considerably lower; and under both kinds of operation the patient has recovered ‡.

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* Schenck. Lib. II. Obs. 36.

† Ballonius, I. p. 182. Fernire, Journ. de Med. Tom. LXII.

‡ Fienus, Chir. Tract. IV. v. c. 1. Musgrave, Phil. Trans. N. 258.

GEN. VII. SPEC. IV. β E. Paristhmitis maligna. Ulcerative, or, malignant sore-throat. Frequently epidemic. Description.

In the MALIGNANT OR SECOND VARIETY, the inflammation passes at once into the ulcerative stage; and is consequently characterised by the symptoms stated in the definition: the sloughing often takes place rapidly, and spreads widely, and the fever is a typhus. This variety is frequently epidemic; generally contagious; and found often as an alarming symptom in rosalia, or scarlet-fever. In its idiopathic form it is usually ushered in with a sense of stiffness in the neck, accompanied with some hoarseness of the voice, and occasionally with symptoms of a coryza. It is in effect a quinsy, taking an erythematic or erysipelatous, instead of a phlegmonous turn, in consequence of the peculiar temperament of the atmosphere, or of the patient, or of some unknown cause.

Explanation.

Extensive range of the ulceration.

The sloughs at first appear whitish, or cinereous; but soon become brown, and often black; and spread over the whole of the fauces, and mouth, into the nostrils, and often down the esophagus; the ulceration has, also, sometimes passed up the Eustachian tubes and affected the ears. And, as the sloughs appear to carry contagion with them, on being swallowed they have communicated the disease through the entire range of the alimentary canal.

Hence often highly dangerous.

The danger is hence very great if the ulceration cannot be checked; and it is peculiarly so to children and adults of relaxed and delicate frames. The disease makes its appearance most commonly in the autumn, though it has appeared in every season.

Whether scarlet fever is a pathognomic symptom.

Dr. Cullen regards the eruption of scarlet fever as a pathognomic symptom of this disease; but this is to confound two complaints that are very clearly distinct, as we shall have farther occasion to observe when discussing rosalia, or scarlet fever. It is at present sufficient to remark that, even in the opinion of Dr. Cullen himself, quinsy is not essential to scarlet fever, or, in other words, does not always accompany it; and that, on the other hand, a scarlet eruption is not essential to the malignant quinsy, or does not always accompany it,

Does not always accompany it.

Gen. VII. Spec. IV. β E. Paristhmitis maligna.

though he contends that it does almost always*;—to show the proper bearing of these two diseases upon each other.

Ulcerative, or, malignant sore-throat. Both may exist separately.

The malignant or ulcerated sore throat may be without a scarlet eruption, or attended with it: if the former, it is an idiopathic affection, and constitutes a variety of paristhmitis, or cynanche. If the latter, it is a symptomatic affection, and constitutes a variety of rosalia or scarlatina.

General regimen:

Cleanliness, pure air, and a free ventilation, are here of the utmost importance: and as the contagion is often very active, the nurses should be cautious to remove speedily the sloughs and foul mucus that are washed or wiped from the mouth.

and treatment. Emetics. Port wine. Aromatics. Mineral acids. Astringents.

The general treatment will necessarily be the same as that we have already pointed out for typhus. Emetics are often employed with great advantage at the commencement of the complaint; and the bowels should be gently opened, but not irritated with drastic purges. The throat should be gargled with port wine, made still more stimulant by spices or other aromatics; or with a strong decoction of bark, or catechu, which is better, very sharply acidulated with mineral acids, or pungent Cayenne vinegar, or charged with an addition of Cayenne pepper in substance. Gargles of the mineral, and even the metallic astringents, have also been tried, but in general they want poignancy. Lunar caustic, in the proportion of one part to a thousand parts of water, has sometimes been found useful †.

Stimulant gargles.

A strong decoction of mezereon root may, also, advantageously form the basis of a gargle; though even this will be improved by an addition of capsicum or Cayenne pepper ‡, and the mineral acids. The stimulus of mezereon is less acrid than that of Cayenne pepper, but is more permanent, and acts more immediately on the fauces. The

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* Pract. of Phys. Part I. Book III. Ch. IV. Sect. DCLI.

† Journ. de Med. Nov. 1789.

‡ Collin. Med. Comment. II. 27. Stephen, Med. Comment. Edin. V.

Gen. VII.
Spec. IV.
β E. Paristhmitis maligna.
Ulcerative, or, malignant sore-throat.
Treatment.
Liniments.

leaves of the flammula jovis, (clematis *recta*, Linn.) or, the upright traveller's joy, may be masticated for the same purpose when fresh, for their acrimony considerably diminishes by drying. They excite a pungent heat in the mouth and fauces, and if chewed in a large quantity, produce a blister. In Persia, a gargle is obtained by boiling the leaves of the water-pepper, (polygonum *hydropiper*, Linn.) better known in the pharmacopæias by the name of persicaria *urens*, which, in many instances, answers very effectually. And, in conjunction with these, camphor or ammonia has often been found beneficial when externally applied in the form of a liniment*. Bark and wine, indeed, should be taken jointly, and in as large a quantity as the system will bear. Even sleep is less necessary than both these; nor should the patient be suffered to rest for a period of three hours at a time, without fresh doses of both, though we wake him for the purpose. Time, indeed, is here every thing: if we make no progress in the first thirty-six hours we may tremble for the event; if we lose ground in twenty-four hours we shall have to hope against hope. Women, unaccustomed to wine, have taken it successfully under this disease in the proportion of two bottles a-day for more than a fortnight.

Bark and wine,
in large doses.

γ E. Paristhmitis pharyngea.
Paristhmitic sore-throat.
How distinguished.
Curative process.

Quinsy of the pharynx is, properly speaking, that which commences in this organ. It is met with but rarely; nor is it, when it does occur, a case of serious importance. It is distinguished by the florid redness of the inflammation, especially at the lower part of the fauces, and by the nature of the fever, which is a cauma. The pain, indeed, extends sometimes behind the sternum, but is only felt in swallowing. The breathing is not affected. A cure is easily induced by swallowing slowly nitrous and mucilaginous medicines, and taking off the phlogotic diathesis, where it prevails, by bleeding and brisk purgatives.

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* Rumsey, Lond. Med. Journ. x.—Medicus, Beobachtungen II. 505.

SPECIES V.

EMPRESMA LARYNGITIS.

Inflammation of the Larynx.

PAIN ABOUT THE LARYNX; EPIGLOTTIS SWOLLEN AND ERECT; BREATHING SHRILL AND SUFFOCATIVE; GREAT ANXIETY; DEGLUTITION IMPEDED; FEVER A CAUMA.

GEN. VII. SPEC. V. Whether ever described till of late.

Probably known to Mead and Hippocrates.

IT is doubtful whether this severe and dangerous complaint has ever been described till of late years. It seems to have been known to Dr. Mead, whose general account coincides with a disease noticed by Hippocrates. It is minutely and accurately detailed by Dr. Home, in his Principia; and is the subject of several excellent papers in the Transactions of the Medico-Chirurgical Society, particularly by Dr. Farre, Sir Gilbert Blane, Dr. Roberts, and Dr. E. Percival. The disease, as will be perceived by the definition, bears a considerable resemblance in many of its symptoms to croup; is highly acute, and destroys by suffocation in a day or two, unless very actively opposed. Frequently, indeed, it destroys much sooner. Brassavoli mentions a case, which seems to have been of this kind, that proved fatal in ten hours*: and Schenck, another, in which suffocation and instant death were produced by a fit of vomiting, the spasmodic action having extended to the stomach or its auxiliary muscles†.

Closely resembles croup.

Description.

The disease makes its approach with the common symptoms of inflammatory fever, as chilliness succeeded by heat; the voice becomes hoarse and indistinct; the breathing laborious, with a painful sense of constriction in the throat; the fauces present a Modena red colour, and are considerably swollen and turgid, the swelling extending to the face and eyes, the latter not unfrequently protruding, as in cases of strangling; the pulse is quick and the tongue furred; and every attempt to swallow is accompanied with great distress; the muscles of deglutition, and even those of the chest, being thrown into severe spasms, threatening the patient with instant death from suffocation, and making him call out for air and an opening of the windows.

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* Comment. ad Hippocr. de Rat. Vict. acut. Lib. IV.

† Obs. 29 ex Trincavellio, Lib. II.

GEN. VII. SPEC. V. Empresma Laryngitis. Inflammation of the larynx.

It is distinguished from croup by the existence of a perpetual and voluntary hawking, rather than a forcible and involuntary cough, as though to clear the passage by expectoration. It is also distinguished from it by the nature of the expuition which is a viscid mucus, rather than a coagulable and membrane-like exudation. The two diseases differ, moreover, in their proximate causes as considerably as in their symptoms. Laryngitis consists in a *suppurative* inflammation of the membranes of the larynx, extending backward to the membrane common to itself, and the esophagus, between which pus is often found lodged: while croup or bronchitis is a *peculiar* inflammation of the trachea, extending through the bronchial vessels, and exciting on their internal surface the secretion just noticed of a concrete filmy material which threatens suffocation by filling up the opening of the rima glottidis.

How distinguished from croup.

In the treatment of this distressing malady, our object should be to take off the inflammation by the most active means. For this purpose eighteen ounces of blood should be instantly drawn from the arm, and eight or ten from the throat by leeches; and the bowels should be thoroughly purged by calomel and jalap, or some other active cathartic. In connexion with this process many writers advise the application of a blister, and the use of relaxant inhalations. But, in preference to both, I would recommend gargles of ice-water acidulated, and epi-

Treatment.

Gen. VII. Spec. V. Empresma Laryngitis. Inflammation of the larynx.

thems of pounded ice applied externally. If this plan do not at once succeed, no time is to be lost, and bronchotomy must be had recourse to. But whether the opening should be made in the larynx, or below it, must be left to the judgment of the surgeon to determine.

Sometimes commences mildly and assumes a chronic form.

Illustrated.

In a few instances, however, this disease seems to commence with comparatively little violence; and to run easily into a chronic form: a case of which kind is described by Mr. Wood in the Edinburgh Medical and Physical Journal. The child, a female, was ten years old when she was attacked. The symptoms for the first three or four days were even so trifling that no attention would have been paid to the complaint but for the croaking noise made in breathing, and particularly during sleep, which had a considerable resemblance to croup. The disease advanced gradually and almost imperceptibly, except by occasional exacerbations, with a pulse from eighty to ninety in a minute, till the twenty-eighth day, on the noon of which the patient ate with an appetite, and with tolerable ease. At this period a night exacerbation carried her off suddenly; and on examination, the larynx was found internally covered and nearly filled with coagulable lymph, which is said to have assumed a membranous form; and hence approaching to the nature of the exudation in croup.

SPECIES VI.

EMPRESMA BRONCHITIS.

Croup.

BREATHING PERMANENTLY LABORIOUS AND SUFFOCATIVE; SHORT, DRY COUGH; EXPECTORATION CONCRETE AND MEMBRANOUS; FEVER A CAUMA.

Gen. VII. Spec. VI.

The writers on croup have given but one form of it, except what has been erroneously called spasmodic croup, a disease of a different kind, which has already been described under the name of LARYNGISMUS STRIDULUS. Properly speaking, however, there are two forms, an acute and chronic, under which the present species shows itself, and which may thus be distinguished as varieties:

GEN. VII.
SPEC. VI.
Empresma Bronchitis.
Croup.
Hitherto erroneously arranged.

α Acuta. Acute croup.	Sense of suffocation keen, and constrictive; chiefly seated in the larynx; respiration sonorous; voice harsh; cough ringing; great restlessness; terminating in a few days.
β Chronica. Chronic croup. Bronchial polypus.	Sense of suffocation obtuse and heavy; chiefly seated in the chest; cough severe, but intermitting; extending to some weeks or months.

The disease, in both varieties, usually commences with the common symptoms of a cough or catarrh; but essentially consists in a peculiar inflammation that spreads through different parts or even the whole range of the windpipe, from the larynx to the minutest ramifications of the bronchiæ. In this extensive sense, the tube was called *bronchus* by the ancients; and I have hence preferred the term *bronchitis* to that of *trachitis*, or inflammation of the trachea, as such a term would imply a limitation of the inflammatory action to the upper part of the bronchus alone, to which it is not confined in either of the varieties before us. Bronchitis has indeed been applied by Dr. Badham to a catarrhal inflammation of the bronchial membrane, but it would be better, perhaps, to regard this last affection as a variety of catarrh, than to treat of it as a distinct species under a distinct name.

Import of bronchus formerly, and on the present occasion.

The FIRST variety, importing the COMMON OR ACUTE CROUP, the suffocatio stridula of Dr. Home, who has the merit of having earliest called the attention of medical practitioners to it as a distinct disease, though it

α E. Bronchitis acuta Common or acute croup.

Gen. VII. Spec. VI. α E. Bronchitis acuta. Common or acute croup.

Peculiar membrane-like secretion.

Chemical character.

extends thus widely, usually commences in the larger parts of the tube; during which a peculiar effusion is secreted, that readily assumes a membranous form, and lines, not only the trachea above its devarication, but also its minutest branches, though the larger parts of the tube are first affected. When chemically examined the secretion appears to consist chiefly, if not entirely, of the gluten, or coagulable lymph of the blood, diluted with its serosity, and copiously combined with that peculiar substance of the blood, detected by the labours of modern chemistry, which, from its essential tendency to concrete into a fibrous, and even a membranous texture, has received the name of fibrin.

Sometimes secreted in other parts of the system :

By what means the mucous secernents throw forth this peculiar effusion on this peculiar occasion we know not. It is said by some writers to be secreted on no other occasion, and by no other organ; but this is unquestionably a mistake. There are few practitioners, perhaps, of accurate observation, who have not found it discharged at times from the intestinal canal; of which I have already given examples under DIARRHÆA *tubularis;* in which, as in croup, there is an inflammatory affection of the morbid organ, and a spasmodic constriction of the passage.

and in the formation of polypi.

Whence croup has been named angina polyposa,

but incorrectly.

In reality the effusion, distinct from the inflammation that gives rise to it, is not essentially different in its principles from what occurs in genuine polypus, or that of the nostrils, and those polypous concretions which are often to be found in other cavities: and hence Dr. Michaelis and some other writers have given to the disease the name of angina *polyposa*[*]: a term, however, inconvenient, and, indeed, inaccurate, since angina, as commonly understood, imports inflammation of the fauces accompanied with difficulty of swallowing, neither of which are necessary or even accidental symptoms of bronchitis.

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[*] De Anginâ polyposâ. Auctore Christ. Fred. Michaëlis. 12mo. Argentor. 1779.

Gen. VII. Spec. VI. α E. Bronchitis acuta. Common or acute croup. Disease known in most parts of the world at present; though not distinctly noticed till within the last century.

This disease appears in the present day to exist in most parts of the world, and in the American states is called *hives*, supposed by my distinguished friend Dr. Hosack to be a corruption of the term *heaves*, and probably so named from the heaving or violent efforts of the muscles of the chest and abdomen which take place in breathing during its course. It is hence extremely singular that till within the last century it should either not have had any existence or not have been definitvely noticed or described by medical writers: for Dr. Cullen appears to be perfectly correct in referring to Dr. Home as the first person who has given any distinct account of it *.

Its attack on children not easily accounted for.

It is also not a little singular that children should be chiefly subject to its attack, at whose age fibrin is not peculiarly abundant, and whose blood contains comparatively but a small proportion of azote, which in fibrin is so large a constituent. These are among the many curiosities which the prying eye of physiology has yet to follow up: and much has it to accomplish before it will be able to explain them.

Rarely attacks them after twelve years of age.

Dr. Cullen asserts that acute croup seldom attacks infants till after they have been weaned; and that there is no instance of its occurring in children above twelve years of age. As a general rule this remark holds, but the disorder has been found occasionally in persons considerably above twelve years of age. Those who have once had it are more susceptible of it than before; though the susceptibility gradually wears off as they grow older. It is found equally in midland regions and on the coast: but perhaps more frequently in low, marshy grounds, than in drier uplands. There is no unequivocal instance of its being contagious, though it seems to have been occasionally epidemic.

Description.

It commences usually with a slight cough, hoarseness, and sneezing, as though the patient had caught cold and

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* De Suffocatione stridulâ.

Gen. VII. Spec. VI. α E. Bronchitis acuta. Common or acute croup.

was about to suffer from a catarrh. And to these, in a day or two, succeed a peculiar shrillness and singing of the voice, as if the sound were sent through a brazen tube. At the same time, says Dr. Cullen, who has well described the progress of the disease, " There is a sense of pain about the larynx, some difficulty of respiration, with a whizzing sound in inspiration, as if the passage of the air were straitened. The cough which attends it is sometimes dry; and if any thing be spit up, it is a matter of a purulent appearance, and sometimes films resembling portions of a membrane. Together with these symptoms, there is a frequency of pulse, a restlessness, and an uneasy sense of heat. When the internal fauces are viewed they are sometimes without any appearance of inflammation; but frequently a redness, and even swelling appear: and sometimes in the fauces there is an appearance of matter like to that rejected by coughing. With the symptoms now described, and particularly with great difficulty of breathing, and a sense of strangling in the fauces, the patient is sometimes suddenly cut off*." To which I may add that the countenance exhibits great distress; the head and face are covered with perspiration from the violence of the struggle; the lips and cheeks are alternately pale and livid.

Whence the danger of the disease:

The essence of croup consists in the secretion of this viscid and concrete lining, which is perpetually endangering suffocation. Dr. Cullen does not dwell sufficiently upon this symptom; but ascribes this danger principally to spasmodic action, and represents the accompanying fever, which, on his hypothesis, is also a spasmodic action, to be very considerable; but spasm was with him, as we have already seen, a favourite doctrine, and his judgment was often warped by it. Dr. Marcus of Bamberg in Bavaria, who regards all fevers as inflammation of some organ or other, and as entirely seated in the arterial system, regards croup also as a

whether from spasm,

or inflammation:

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* Pract. of Phys. cccxxiv.

Gen. VII. Spec. VI. α E. Bronchitis acuta. Common or acute croup. both of which are present.

local inflammation alone, utterly independent of spasm, which neither exists here, nor in fevers of any kind: and attributes the danger to this symptom solely. That there is some degree of spasmodic action, however, as well as of fever is unquestionable, though neither are very considerable; and the locality of the disease as well as the peculiar character of the inflammation, sufficiently distinguish it from catarrh, in which there is also some inflammation of the mucous membrane of the trachea, though of a common kind, and rarely limited to this organ. In children, however, it frequently treads close upon catarrh, measles, hooping-cough, and any other disease that has debilitated the powers of the lungs: for as Dr. Michaelis observes, whatever tends to weaken or produce any degree of irritation in the lungs so as to occasion a preternatural secretion into that organ, may be considered as a predisposing cause of croup.

The cure must depend upon removing and preventing the membranous secretion, which chiefly endangers suffocation.

The cure demands a prompt and active attention; and must depend not so much upon searching into and correcting the remote cause, or even counteracting the spasm, as in counteracting and removing the membranous secretion, which is every moment in danger of producing suffocation; and especially in children, in whom the natural aperture of the glottis is much smaller in proportion than in adolescents; and occasionally not more than a line and a half in breadth.

Copious bleeding.

There is in the patient a perpetual effort to remove this solid secretion by coughing; but the cough is for the most part dry and ineffectual, and nothing more than a little flaky mucus is excreted. Very copious bleeding* at the commencement of the attack, by breaking abruptly upon the inflammatory action, has sometimes carried off the disease at once. This M. Fieliz recommends from the jugular veins†, and M. Ghisi by topical scarifications; but leeches will usually be found to answer best in in-

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* Michaëlis. Richter's Chir. Bibl. v. B. p. 739.

† Fieliz. Richter's Chir. Bibl. viii. B. p. 531.

Gen. VII. Spec. VI. α E. Bronchitis acuta. Common or acute croup.

Emetics doubtful: sinapisms and blisters.

Vapour of warm-water.

Calomel.

fancy. Emetics have afterwards been tried, but with doubtful success: sinapisms * and blisters † with as little. The inhalation of warm vapour, recommended by Dr. Home, can rarely be practised from the extreme restlessness of the little patient; and the remedy principally relied upon in the present day, and which certainly seems in many instances to have operated like a charm, is large and repeated doses of calomel; of this not less than five or six grains are commonly given to very young children, and continued every two or three hours till there is a discharge of a green bilious matter, which seems to be the criterion of its having taken effect, and broken down the thicker part of the blood, from which the membranous secretion is principally furnished. If this should not succeed, Dr. Michaelis recommends tracheotomy, and has so little apprehension of its being attended with danger, that he advises it to be had recourse to soon after the attack, as affording a convenient opportunity of bringing away the preternatural membrane which serves as a lining to the trachea ‡. But this advice is given with more courage than judgment. Whenever performed it should be after every other remedy has failed, and not before any other has been attempted.

Tracheotomy.

Distinguished from laryngismus.

Under the genus LARYNGISMUS belonging to the second order of the preceding class, I have observed that the spasmodic affection there described, from its inducing a sense of suffocation, and possessing various other symptoms resembling those of croup, has often been mistaken for this last complaint, and been denominated spasmodic croup; though without the pathognomic sign of a membrane-like exudation, and for the most part without any inflammation whatever. It attacks children suddenly, most frequently in the night, and is apt to return in paroxysms, with short intervals of ease: whilst

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* Fieliz, l. c.

† Inquiry into the nature, &c. of the Croup.

‡ De Anginâ polyposâ, &c. ut supra.

Gen. VII.
Spec. VI.
α E. Bronchitis acuta.
Common or acute croup.

the real acute croup has no intervals, but continues its alarming course till it destroys the patient or yields to the means made use of. During the action of the spasm, however, there is a considerable hoarseness and shrillness in the voice, and, from the struggle, a profuse perspiration about the head and face. Violent as these symptoms are, they commonly yield to a brisk antimonial emetic: after the operation of which, the patient commonly falls into a sound sleep, and awakes with little remains of the complaint.

β E. Bronchitis chronica.
Chronic croup: or Bronchial polypus.

The SECOND OR CHRONIC VARIETY OF BRONCHITIS, I have introduced chiefly on the high authority of Dr. Warren, who calls it, as I have already observed, a bronchial polypus; a term which, as it often has done, may lead to mistakes; and which, in its application to any other part of the body, does not import the febrile action which exists as a characteristic of this disease. A concrete parenchymatous material, obstructing the bronchial vessels, coughed up in smaller or larger masses, sometimes easily and without any attachment to the sides of the bronchial tubes, and sometimes so extensively inosculated by radicles or radiating vessels as to produce a fatal hemorrhage on their being thrown up with violence, has been noticed from a very early period in the history of medicine to the present day. Bartholine, Tulpius, Ruysch, Gretz, and Morgagni, have all been appealed to as giving examples of this affection; and it is very possible that even Hippocrates may allude to something of the kind in the case of Phericydes who, he tells us, was accustomed to bring up from his lungs in a fit of coughing, γαλακτώδεα, "white milky concretions;" and at length before he died οἷον ἐκ μύξης μυκητὰ, ξυνεστηκότα, λευκῷ φλέγματι περιεχόμενα, "firm mucus-like excrescences, surrounded with white phlegm *." But the complaint does not seem to have been distinctly described, till Dr. Warren's history of it in the Transactions of the Col-

How far noticed in earlier times.

Not distinctly noticed till Warren's account.

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* De Morb. Popular. Lib. VII. Sect. xli.

Gen. VII. Spec. VI. ϵ E. Bronchitis chronica. Chronic croup: or Bronchial polypus. Illustrated.

lege*. The case by which he chiefly illustrates it, and which is here chiefly alluded to, is that of a young lady eight years of age, of a strumous habit, who was suddenly attacked with a difficulty of breathing, attended with a short, dry, and almost incessant cough; but without any pain in the side or chest. The symptoms diminished in the ensuing night, and the complaint appears to have been productive of little inconvenience for six weeks; when it returned with additional severity, with costive bowels, a white but moist tongue, and a pulse too quick to be counted. Bleeding, purgatives, and the oxmel of squills relieved her, but the breathing was still laborious; she had wasting night sweats, and the pulse beat from a hundred to a hundred aud twenty strokes in a minute for the ensuing twelve days, at the close of which period, she woke suddenly in the night and was almost choked in bringing up, by coughing, what Dr. Warren calls "a large polypous concretion." It came up without either blood or mucus, and instantly gave her great relief. For two months afterwards she seldom passed three days without coughing up masses of the same kind, but none so large: she was tolerably easy when sitting still or in motion in the open air; and though her pulse never beat less than a hundred and twenty strokes in a minute, she had a good appetite, gained some degree of strength and flesh, and entirely lost her night-sweats. She was now suddenly attacked at night with another paroxysm of distressful breathing, and a sense of suffocation, and in the morning threw up a larger membranous concretion than at any time antecedently, and in the course of the four ensuing days, a quantity quite as large as in the six preceding weeks. From this time the oppression on the lungs returned irregularly after intervals of five, eight, ten, or twenty days, always followed and always relieved by an expuition of the same concrete material; till at the close of a twelvemonth from

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* Vol. I. Art. XVI.

Gen. VII. Spec. VI. ε E. Bronchitis chronica. Chronic croup: or Bronchial polypus.

the first attack, the patient complained of a pain in the right heel, an abscess formed there, and the os calcis was found carious. From this time the bronchial affection ceased, the breathing was perfectly free, and no more concretion was at any time thrown up.

Concrete substance expectorated, how accounted for at first: but incorrectly.

Dr. Warren conceived this concrete substance to have been an inspissated matter secreted by the mucous glands of the bronchial vessels. But the existence of fibrin, as a constituent part of the blood, was unknown at the period in which he wrote; and his plates and description of the membranous matter expectorated show evidently that, like that discharged in croup, and often from the intestinal canal, it was composed of this formative element intermixed with gluten, secreted in layers, and affecting a tubular structure. "Some of these *polypi*," says he, "are of a much firmer texture than others, and bear shaking in water without breaking to pieces. Others are so tender that a very gentle motion in water breaks off a great many of their smaller branches. They are solid, composed of laminæ, which are easily separated from each other, and are manifestly of a texture less and less firm as you approach the centre or axis, which consists of a white pappy mucus as thick as cream. I observed one, about the size of a quill, which was tubular. It seemed to consist of a few lamellæ only."

Treatment.

In connexion with the plan of treatment already pointed out, it is highly probable that much benefit might, in this chronic form of bronchitis, be derived from the use of mercury and fox-glove. And as a natural cure was obtained by a metastasis, or a morbid action excited in a remote organ, we have a strong invitation to follow in a like path; and should endeavour to obtain a like beneficial result by the use of setons or caustics.

SPECIES VII.

EMPRESMA PNEUMONITIS.

Peripneumony.

INFLAMMATION OF THE LUNGS; OBTUSE PAIN IN THE CHEST; CONSTANT DIFFICULTY OF RESPIRATION, ALLEVIATED BY AN ERECT POSITION; TUMID, PURPLE FACE, OR LIPS; COUGH, GENERALLY MOIST, OFTEN BLOODY; PULSE USUALLY SOFT.

Gen. VII. Spec. VII. Synonyms. INFLAMMATION of the lungs has been described under so many names that it is scarcely worth while to give a list of them. The most common perhaps is peripneumonia, for which pneumonitis, employed first, I believe, by Bourgard in his Dissertation published in 1754, is here substituted merely on account of the regularity of its termination.

The disease as above characterized, is traced under the three following varieties:—

α Vera. True Peripneumony.	Fever a cauma; pain severe, little expectoration in the beginning.
β Maligna. Malignant Peripneumony.	Fever a synochus or typhus; the debility extreme from an early period. Often epidemic.
γ Notha. Spurious Peripneumony.	Great secretion and expectoration with a mild cauma. Occurring in weakly habits, and often connected with a catarrh.

Gen. VII. Spec. VII. α E. Pneumonitis vera. True peripneumony.

The FIRST of these varieties, or TRUE PERIPNEUMONY, is, perhaps, the most common, and has been more generally treated of than the rest.

United by Cullen with pleuritis.

Distinctive characters.

Dr. Cullen has united inflammation of the parenchyma of the lungs, which is here alone contemplated, with inflammation of their membranes; as believing that we have no means of ascertaining a difference from the course or concomitancy of the symptoms. It may be observed, however, that in pleurisy the face is comparatively but little flushed, and far less tumid; that the pulse is harder; the cough less violent, and, from the beginning to the end, without expectoration; the seat of pain also is here fixed: while in peripneumony, it shifts not only to different parts of the same side, but often from the one side to the other; and, when the lower part of the right lung is affected, is communicated to the liver, occasioning an uneasiness in the right hypocondrium, and accompanied with a yellow and copious expectoration. It is most commonly the case, however, that some degree of pleurisy accompanies pneumonitis from continuous sympathy *; but then it is not idiopathic pleurisy, nor strictly possessed of its symptoms.

Yet sometimes found concurrent.

More easily distingishable than inflammation of the brain and its membranes.

And why.

Inflammation of the substance of the lungs bears nearly the same relation to pleurisy or inflammation of the membrane that lines it, as profound or parenchymatous cephalitis bears to meningic. The two former, however, are somewhat more distinct and less liable to run into each other than the two latter, because one half the pleura, from its duplicature, is more remotely situated from the lungs and less connected with them. And I have hence followed the ordinary division, and treated of pneumonitis and pleuritis as distinct species, rather than varieties of one common species, which is the view taken of meningic and profound cephalitis. In both sets of disease, however, the membranous is the more acute affection, evinces more violent and painful

Analogy between cephalitis and the diseases in question.

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* Morgagn. De Sed. et Caus. Morb. Ep. xxi. Art. 13, 14. 37.

Gen. VII.
Spec. VII.
α E. Pneumonitis vera.
True peripneumony.

symptoms, and runs through its course more rapidly. And hence, in pneumonitis, as in meningic phrensy, the pulse is sometimes soft*, the fever small†, and the progress protracted occasionally to twenty days or more‡.

Causes.

The causes of true peripneumony are those of inflammation in general; particularly excessive exertion of the lungs, or cold, applied when the system is generally heated, to the skin, mouth, or stomach. It attacks the robust and plethoric more frequently than the spare and delicate; and appears most frequently in cold weather, or sudden changes from hot to cold. Repelled eruptions have probably sometimes proved a cause; and noxious exhalations certainly. To the last we may refer the frequency of this disease in the outskirts of Mount Vesuvius, as remarked by Vivenzi§; and on this account it is described by Baronius‖ and Bovillet¶, as endemic.

Description.

The first symptoms also are those of inflammation in general; but there is usually more shivering, or cold fit, and the hot stage is proportionally violent; the head aches considerably, and the urine is high-coloured. The pain in the chest is rarely felt in any oppressive degree till these symptoms have continued for a day or two: though sometimes it is coetaneous. The cough is short, peculiarly distressing, and obstinate. The pulse is variable, in some cases hard and strong, in some soft or oppressed; but, with the advance of the disease, it becomes feeble, sometimes fluttering. Delirium is an occasional accompaniment, and is a highly dangerous symptom, except where it alternates with the pneumonic symptoms, in which case it augurs well. In favourable terminations the violence of the disease diminishes on or before the seventh day: if it increase beyond this, it commonly proves fatal.

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* De Caballis, Phænom. Med.

† Cleghorn. p. 262.

‡ Stoll, Rat. Med. Part II. p. 376. Act. Nat. Cur. Vol. v. Obs. 124.

§ Epist. ad Haller. iv.

‖ Pleuropneumonia Ann. 1633. Flaminiam infestante. Fidi. 1536.

¶ Memoires sur les Pleuropneumonies epidemiques, p. 556.

Peripneumony, like other inflammations, terminates in effusion, suppuration, or gangrene; and it has also a termination peculiar to itself, which is that of hemorrhage from an increased vis à tergo. The most salutary mode is effusion, for the vessels hereby become relieved, and the secernents immediately add to the relief by commencing an increased action, and consequently an increased discharge of mucus. In consequence of effusion, however, we occasionally find adhesions take place between the lungs and the pleura; and sometimes a collection of water in different parts of the chest; and not unfrequently a flow of blood, apparently from the mouths of the exhalents without any rupture of vessels, giving a bloody tinge to the sputum. This last has been often regarded as an alarming symptom, but the alarm is altogether unfounded, for it generally affords considerable relief. Indeed an hemorrhage itself from the lungs has not always been attended with fatal consequences: it has occasionally proved critical, and carried off the disease in a few days: though a hemorrhage from the nose, no unusual attendant, is far preferable, as producing a like benefit with less risk. If the inflammation run into suppuration, the change is generally indicated by shiverings, with a remission of pain, and sometimes perspiration where there has been none before. If gangrene ensue, the pulse sinks, the debility rapidly increases, and the eyes are fixed with a ghastly stare.

Terminations of pneumonitis.

Effusion the most favourable.

Yet sometimes adhesions follow.

Sometimes dropsy of the chest.

Bloody sputum not necessarily dangerous.

The best, the easiest, and even the natural cure of peripneumony is expectoration; which, hence, ought to be excited, and encouraged by all the means in our power. It forms the *optima crisis* of Stoll, though, as he adds, a crisis too rarely obtained*. Bleeding, by giving some degree of freedom to the distended capillaries, affords one mean of accomplishing this object; but if the

Treatment.

Expectoration the best and most natural cure.

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[*] Rat. Med. III. 53.

Gen. VII. Spec. VII. α E. Pneumonitis vera. True peripneumony. Treatment. Bleeding according to the general habit and constitution.

patient's strength be considerably reduced, the strength of the capillaries will be reduced also, and they will be too debilitated for the increased action. It is, hence, necessary to measure the general habit and constitution of the patient, as also the situation in which he resides; for if he be in an open and mountainous region, and addicted to the pursuits of a country life, he will bear bleeding far more readily and freely than if he be the inhabitant of a crowded city, or accustomed to a sedentary life.

In some cases very copious.

In this case the bleeding should be prompt and copious, at least to eighteen or twenty ounces, and repeated twelve hours after if necessary; and as the disease occurs chiefly in robust constitutions, it is rarely that venesection can be dispensed with. The chief evil is that the fever is apt, at times, to run into a typhous form, and assume the second of the varieties before us. And hence, where there is any doubt upon the subject, local bleeding is to be preferred, whether by leeches or cupping glasses, repeated according as the evacution appears to be demanded. Laxatives and refrigerants are next employed with the same general view of taking off the entony of the arterial system. One of the most common, and, at the same time, most useful refrigerants, is nitre; which may be combined with the citrate of potash, or made to produce a more certain determination to the skin by the addition of camphor or of antimonial wine, or by a combination with the citrate or acetate of ammonia.

Sometimes local only.

Laxatives and refrigerants.

Emetics.

Emetics have seldom been given except in an early stage of the disease, and then only as a gentle puke; yet, from my own practice, I can recommend them when the disease has made a considerable advance: but they must be used boldly, or so as to produce full vomiting, and the action of vomiting must be maintained for an hour, or even two: and in this way they will often produce a transfer of action of as beneficial a nature as the same process is found to do in purulent ophthalmy; and will, at the same time, peculiarly stimulate the exhalents of the lungs to an increased secretion of mucus. Blisters, as is the

Full vomiting.

common practise, ought to form a concomitant in the general plan; and the obstinacy of the cough may be alleviated by demulcents, or inhaling the steam of warm water. Opiates have been tried in every form, but have never been found of decisive benefit: if opium be used at all it should be in conjunction with gum ammoniac, or squills: but, upon the whole, either of these expectorants seem to answer best without opium. Dr. Saunders recommended the extract of the white poppy; and that of the garden-lettuce has since been tried upon the recommendation of Dr. Duncan; others may have been more fortunate than myself, but, in my hands, both have proved altogether insignificant in their effects.

Treatment. Blisters. Demulcents. Inhalations. Opium rarely useful. Extract of white poppy. Garden-lettuce.

If the disease proceed favourably the pulse becomes slower and softer: the yellow tenacious, and perhaps bloody sputum, is mixed with points of a whiter matter, which increases with the amendment of every other symptom; for the cough is less violent and straining, the breathing freer, the skin moister, and the tongue cleaner at the edges. If the progress be less favourable, the expectoration becomes darker and more viscid; the pulse lower, indistinct, and often intermitting; a low, wandering delirium supervenes, with subsultus; and the patient dies, apparently suffocated from the oppressed vessels no longer permitting an expansion of the lungs.

Prognostics.

When a salutary expectoration has commenced, it sometimes ceases suddenly from some unknown cause, or some irregularity in the mode of treatment. This symptom is alarming; and every means should be instantly taken to bring the discharge back; such, particularly, as increased doses of the expectorants already noticed, to which may be added the steam of vinegar, alone, or impregnated with the essential oil of aromatic plants, as rosemary. And if a diarrhœa, which sometimes proves a very distressing concomitant, should subtervene, it will be best relieved by the pulvis cretæ comp. cum opio.

Accidental evils.

How relieved.

Gen. VII. Spec. VII. α E. Pneumonitis vera. True peripneumony. Treatment. Found occasionally in other disorders.

Inflammation of the lungs is, also, occasionally found as a symptom or sequel in rheumatism, lyssa, or canine madness, various exanthems, as small-pox, measles, miliaria, and commonly in phthisis; in which last it has a very frequent tendency to suppuration, as we shall have to notice when treating of this distressing complaint.

β E. Pneumonitis maligna. Malignant peripneumony. An epidemic synochus or typhus, with inflammation of the lungs. The debility extreme. By some called a pulmonic erysipelas.

The MALIGNANT PERIPNEUMONY, contrary to the true, or common inflammatory affection, is generally an epidemic, and may be easiest explained by describing it as an epidemic synochus or typhus* occurring in such situations, at such seasons of the year, or in such a temperament of the atmosphere as has a tendency to excite inflammation of the lungs. The debility is often so extreme from an early stage of the disease, that the pulse ceases on the pressure of the finger; and the vascular action is too weak to accomplish expectoration. It is supposed by many writers, and especially by Sarcone and Ludwig, to be a pulmonic erysipelas, by which they mean an erysipelatous erythema: and they are probably right in their conjecture. Whence Planchon regards erysipelas as its proximate cause†. The symptoms are those already described, with a great addition of sensorial debility, and consequently with increased laboriousness of respiration. The disease is usually fatal on the fourth or fifth day; and if the system be incautiously lowered by venesection or a laxative of too much power, it often takes place earlier; and has sometimes occurred within twenty-four hours after bleeding.

Early fatality.

Treatment, as for typhus.

Our attention must here, therefore, be turned rather to the constitutional disease than to the local affection; and the plan recommended in typhus is to be pursued on the present occasion: for it will be in vain to attempt expectoration under circumstances in which the

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* Pelargus, Medicinische Jahrgänge I. i. p. 44. Tissot. sur l' Epidemie en Lausanne, &c.

† Journ. de Med. Tom. XLVI. p. 24.

Gen. VII. Spec. VII. β E. Pneumonitis maligna. Malignant peripneumony. Treatment. Local stimulants. Bark not injurious to the breathing.

system will probably sink before the usual time arrives for effecting it. Camphor is here a medicine of considerable service, and may be used in conjunction with the aromatic confection, and wine in large quantities. It should be taken freely in the form of pills, rather than in that of julep: though both may be employed conjointly. Even the bark has a powerful claim to be tried, and that too in as large quantities as in putrid fever; nor has it been found to produce difficulty of breathing. It may be advantageously combined with the aromatic spirit of ammonia, which of itself often proves a useful stimulus. If evacuations be necessary they should be obtained by injections alone. A light breathing perspiration, a free expuition, and a more animated appearance of the countenance, are among the most favourable diagnostics.

γ E. Pneumonitis notha. Spurious peripneumony. Related to catarrh and sometimes called catarrhus suffocativus.

The SPURIOUS OF BASTARD PERIPNEUMONY is usually allowed to offer another variety of this disease; and is described under the name of peripneumonia *notha* by Boerhaave, Coze, and Sydenham. It is, in many instances, little more than a severe catarrhal affection of the lungs, accompanied with great obstruction, occurring in habits of a peculiar kind; and is hence denominated by many authors catarrhus *suffocativus*. It is characterized by great secretion and expectoration, with a mild cauma; and is chiefly found in those of advanced life, or who have weakened their constitution by excesses.

But judiciously distinguished from it by Sydenham. Description.

Sydenham, however, has properly distinguished this malady from catarrh, notwithstanding the close resemblance it bears to it on particular occasions. The following is his description of the disease:—The patient is hot and cold alternately, feels giddy, and complains of an acute pain in the head, especially when there is a teazing cough. He rejects all fluids, sometimes from paroxysms of coughing, and sometimes without: the urine is turbid, and of a deep red; the blood appears as in pleurisy. The patient breathes quick and with difficulty: complains of a general pain througout the entire breast, GEN. VII. SPEC. VII. γ E. Pneumonitis notha. Spurious peripneumony.

and as he coughs discovers a wheezing to the attendants. The cheeks and eyes appear slightly inflamed; the pulse is small, often intermitting; and lying low, or on one side, is peculiarly distressing.

Process of treatment.

As the fever is here of no great moment, we may, with considerable advantage, carry our local stimulants to a greater extent, and thus excite the lungs more actively to throw off the burden of mucus with which they are overpowered. Squills, gum ammoniac, balsam of Peru, and even some of the turpentines, may be tried and will mostly be found serviceable. The tetradynamia, as charlock, wild-rocket, and mustards of various sorts; and the alliaceous plants will form useful auxiliaries in the plan of diet. Blistering is highly serviceable; after which, as soon as the chest is a little unloaded, a regimen directly tonic should be commenced, by means of bitters, chalybeate waters, a moderate portion of wine, gentle exercise, pure air, and the irritation of an issue or seton: for a common result of this disease is hydrothorax from atony of the absorbents of the chest. And hence, perhaps, more frequently fall a sacrifice to some sequel of the disease than to the disease itself.

Expectorants.

Blistering.

Tonic regimen.

SPECIES VIII.

EMPRESMA PLEURITIS.

Pleurisy.

ACUTE PAIN IN THE CHEST, INCREASED DURING INSPIRATION; DIFFICULTY OF LYING ON ONE SIDE; PULSE HARD; SHORT, DRY, DISTRESSING COUGH.

GEN. VII. SPEC. VIII.

As the proper seat of the preceding species is in the substance of the lungs, or the pleuritic membrane that

Gen. VII.
Spec. VIII.
Empresma pleuritis.
Pleurisy.
How distinguished from pneumonitis.

immediately lines its surface, or in both, the proper seat of the present is in the surrounding membranes of the pleura; and as these differ, the difference has laid some foundation for several varieties; of which the three following may be noticed, as matter of curiosity, though the subdivisions lead to nothing of practical importance, as the causes are nearly alike, and the same mode of treatment is applicable to the whole.

α Vera. True Pleurisy.	Fever a cauma: pain felt chiefly on one side: the inflammation commencing in that part of the pleura which lines the ribs.
β Mediastina. Pleurisy of the mediastinum.	Heavy pain in the middle of the sternum, descending towards its ensiform cartilage; with great anxiety; the inflammation, from its symptoms being obviously seated in the mediastinum.
γ Diaphragmatica. Pleurisy of the diaphragm.	Painful constriction around the præcordia; small, quick, laborious breathing: manifesting that the inflammation is seated chiefly in the diaphragm.

α E. Pleuritis vera.
True pleurisy.

We have already pointed out the distinction between true pleurisy and peripneumony; and observed that in the former the cough is dry and commonly without expectoration from the beginning to the end, contrary to what occurs in the latter; that the seat of pain is fixt, instead of shifting from side to side; and that the face is far less flushed and tumid. It must be conceded, however, to Dr. Cullen, who has treated of these affections under one common definition, that the general features of the two have a considerable resemblance; and, with the exception of expectorants, which in pleurisy are of little avail, the mode of treatment already proposed for the former disease, is the same that will be found necessary in the latter: the causes of both are alike, and as peripneumony rarely, though we have reason to believe some-

Gen. VII. Spec. VIII. ε E. Pleuritis vera. True pleurisy.

times, occurs without any degree of pleurisy, so it is commonly affirmed that pleurisy rarely occurs without some degree of peripneumony; in both which cases it has been called a pleuro-peripneumonia. Like the latter we also find the former an occasional symptom or result of typhus, catarrh, rheumatism, and various exanthems. The pleurisy, however, that is supposed to accompany rheumatism, is often an inflammatory affection of the intercostal or other thoracic muscles alone, since the pain is confined to the origin and insertion of the muscles. Where this has been accurately attended to, it has been distinguished by the name of *bastard pleurisy*.

Description.

Like the preceding species, true pleurisy commences with the usual signs of a febrile attack, as chilliness or shivering, succeeded by heat and restlessness. The pain is usually just above the short ribs, and, as already observed, the expirations are less painful than the inspirations. The pulse is hard, strong, and frequent; and though the cough is mostly dry and suppressed, there is sometimes a bloody or puriform mucus spit up from the lungs, evidently proving that the substance of the lungs has participated in the inflammatory action.

Termination.

Like the preceeding species also, pleurisy terminates in resolution, suppuration, and gangrene. The former is the ordinary and most favourable issue. The last occurs rarely; but suppuration is by no means uncommon; in which case, if the abscess do not point outwardly, an empyema will necessarily follow; and the formation of pus is indicated by a remission of the pain, one or more shivering fits, and, in some instances, a sense of fluctuation. This, however, is a termination far more common to pleurisy from external injuries, than from internal causes.

Treatment.

In the treatment of pleurisy, as we have no advantage to expect from expuition, we may employ bleeding far more extensively, and with far less caution than in peripneumony.

Perhaps there is no disease in which profuse bleeding

Gen. VII.
Spec. VIII.
α E. Pleuritis vera.
True pleurisy.
Treatment.
Bleeding should be profuse.
Antiquated dispute from what side blood should be drawn.
Whimsical reference.

from a large orifice may be so fully depended upon, or has been so generally acceded to by practitioners of all ages and all nations. The only question which has ever arisen upon the subject being, whether the blood should be taken from the side affected or from the opposite. The earlier Greeks recommended the former, the Galenists and Arabians, the latter; and the dispute at one time rose so high that the medical colleges themselves, not being able to determine the point, the authority of the emperor Charles IX. was whimsically appealed to; who, with much confusion to the controversy, died himself of a pleurisy before he had delivered his judgment. He too had been bled, and his death was immediately ascribed to the blood having been drawn from the wrong side. At present from a knowledge of the circulation of the blood, we can smile at these nugatory solemnities. It is possible, however, that there are some controversies of our own times, that have as little ground-work, and at which future ages may smile with as much reason.

Purgatives.
Blistering.
Diaphoretics.
Opiates.
In case of suppuration how to proceed.

With these exceptions the treatment of peripneumony and pleurisy should run parallel. Purgatives should be used freely; blistering the side is very generally beneficial after bleeding has been tried and repeated, and should be accompanied with diluents and diaphoretics. Opium may also be employed with less caution than in peripneumony. And where we have reason to suspect suppuration, warm cataplasms should be applied to the part to solicit an external opening. If the abscess break internally it must be followed by the operation for an empyema.

β E. Pleuritis mediastina.
Pleurisy of the mediastinum.
Case of Dr. Perceval of Dublin.

The heart and pericardium are sometimes apt to associate in the morbid action, as well as the lungs themselves. This is particulary the case in the SECOND VARIETY. Dr. Perceval, in his manuscript commentary on the Nosology, has given me a striking example of this in a patient who complained of excruciating pain in the region of the heart with dyspnœa, not at all relieved by copious and repeated bleedings. After death a slight effusion was discovered in the pericardium: but the

Gen. VII. Spec. VIII. β E. Pleuritis mediastina. Pleurisy of the mediastinum.

mediastinum was more inflamed than the membrane of the heart. The treatment of this variety ought not to differ from that of the preceeding.

γ E. Pleuritis diaphragmatica. Pleurisy of the diaphragm.

Synonyms.

The cerebrum is, however, still more disposed to associate in the morbid chain of action than in the heart. And hence, when any of the varieties of pleuritis, and particularly the last, are combined with an affection of this organ, and produce delirium, the disorder was formerly distinguished by the terms paraphrénesis, and paraphrenitis; terms derived apparently from the peripatetic philosophy, which supposed the seat of the φρὴν, or soul, to be the præcordia; whence this region was denominated φρένες; while, as Hippocrates supposed its seat to be in the brain, phrenitis, with a lamentable confusion of terms, was, as we have already remarked, applied to an inflammation of this last organ, and continues to be very generally so applied in the present day.

Head most affected in this variety explained.

It is in the LAST VARIETY that the head is most commonly affected; probably from the general sympathy which the diaphragm holds with the lungs and the stomach, and the close community of action between both these organs and the brain. The breathing is here peculiarly distressing and anxious, the diaphragm being the muscle chiefly concerned in respiration, which now takes place without its aid. The hypochondria are drawn inwards and kept at rest as much as possible; the patient is tormented with hiccough and sickness; and there is a peculiar tendency to spasmodic action; whence the angles of the mouth are often involuntarily retracted; there is a sardonic laugh on the countenance, a sense of lightness like the stricture of a cord at the præcordia; and convulsions wander from one part of the system to another. The treatment should be as in the preceding varieties.

Description.

Treatment.

SPECIES IX.

EMPRESMA CARDITIS.

Inflammation of the Heart.

PAIN IN THE REGION OF THE HEART, OFTEN PUNGENT; ANXIETY; PALPITATION; IRREGULAR PULSE.

Gen. VII. Spec. IX.

Resembles the two preceding species.

The symptoms in the definition sufficiently distinguish this species from the preceding. At the same time it must be acknowledged, that carditis, like pleuritis, has many signs in common with pneumonitis; which may readily be conceived from the vicinity and close connexion of the thoracic viscera with each other, and particularly from the very strong sympathy with which, as already observed, they co-operate. Dr. Cullen affirms, indeed, that he has often met with cases of carditis evincing no other symptoms that those of pneumonitis. It is probably on the same account that Linnéus has taken no notice of carditis in his nosological arrangement. Vogel's definition is founded altogether upon this view, "Cordis inflammatio ferè ut in peripneumonia." I have hence been at some pains to draw a line of distinction; and I think it may be found in the symptoms now delivered as the specific character of the disease. We may add to these symptoms, that there is great difficulty of breathing, generally some degree of cough, and a perpetual tendency to fainting; and that if deliquium take place, and the patient do not soon recover from it, it proves fatal.

And hence omitted by some nosologists.

We are not in possession of any signs by which an inflammation of the pericardium can be distinguished

Gen. VII. Spec. IX. Empresma Carditis. Inflamma- of the heart.

from that of the substance of the heart; and hence we cannot make a distinct species of the latter. Vogel and a few other writers have attempted it, but the boundary has not been clearly drawn, and has never been of use.

No distinctive symptoms between inflammation of the heart and pericardium.

Upon dissection, adhesions have been occasionally found to a very considerable extent between the heart and pericardium, even where little inconvenience had been felt during life. From which we may collect that the extent of motion of these two parts on each other is not very great. A purulent kind of fluid has at times also been detected on the outer surface of the heart, without the slightest appearance of ulceration either of the heart or pericardium; and as the same sort of secretion has often been traced, without ulceration in other cavities, Mr. Hewson, as we have already seen, first suspected, and Mr. Hunter afterwards endeavoured to establish, that this fluid is nothing more than coagulable lymph thrown forth from the vasa vasorum, but changed in its nature in consequence of passing through vessels in a state of inflammatory action. And it was this discovery, and the hint thus founded upon it, that gave rise to the doctrine now so generally admitted, and apparently so well sustained, of a distinct secretion of pus, in many cases without ulceration.

Adhesions have been detected when little previous discomfort.

And sometimes purulent fluid.

Causes and treatment.

The causes of carditis are often obscure: when we can trace them, they are for the most part those of pneumonitis; and the mode of treatment needs not essentially vary.

SPECIES X.

EMPRESMA PERITONITIS.

Inflammation of the Peritoneum.

PAIN AND TENDERNESS OF THE ABDOMEN, ESPECIALLY IN AN ERECT POSTURE; WITH LITTLE AFFECTION OF THE SUBJACENT VISCERA, OR ABDOMINAL WALLS.

Gen. VII.
Spec. X.

The inflammation may be seated in the peritoneal membrane lining the cavity of the abdomen, or in its extension to the mesentery or omentum. And hence Dr. Cullen has noticed the three following varieties:—

α Propria. Proper inflammation of the peritoneum.	The inflammation taking the general range of the peritoneum; pain extreme, often pungent, with little or no relief from stools.
β Omentalis. Inflammation of the omentum.	With a more sensible swelling in the region of the omentum.
γ Mesenterica. Mesenteric inflammation.	Pain deeper seated, and more immediately in the mesenteric region: external tenderness less than in the preceding varieties.

Noticed with singular brevity by Cullen:

It is singular that Dr. Cullen, after distinctly characterising this species in his Nosology, and following it up into three subdivisions, each of which with him forms a separate species, as the general disease does a genus, should take no other notice of the entire complaint in any form, except what is expressed in the following laconic remark: "Among the inflammations of the abdominal region, I have given a place in our Nosology to the peritonitis;

GEN. VII. SPEC. X. Empresma Peritonitis. Inflammation of the peritoneum.

comprehending under that title, not only the inflammations affecting the peritoneum lining the cavity of the abdomen, but also those affecting the extensions of this membrane in the omentum and mesentery. It is not, however, proposed to treat of them here, because it is very difficult to say by what symptoms they are always to be known; and further, because, when known, they do not require any remedies besides those of inflammation in general."

and more so than is expedient.

This remark is by far too sweeping. If the diseases referred to have no specific symptoms by which they can be known, they have no more claim to be admitted into a system of symptomatic nosology than into a treatise of practice. Dr. Cullen is right in assigning them a place in the former; and he is, therefore, necessarily wrong in banishing them from the latter; and the more so, as the treatment ought in some degree to vary from that of enteritis, to which his general observation seems chiefly to refer.

α E. Peritonitis propria. Proper inflammation of the peritoneum. How far related to puerperal fever.

The TRUE PERITONITIS occurs, as we have already observed, as a symptom in PUERPERAL FEVER; and as we have treated of it at some length under that disease, it is the less necessary to be minute in our account at present. Puerperal fever, indeed, is sometimes, though not quite correctly, made a variety of PERITONITIS: for it is a disease of a peculiar kind, produced by peculiar causes, and is only connected with peritonitis as the latter enters as a symptom into its general character. In what light Dr. Cullen regarded puerperal fever does not appear from his writings, since, common as the complaint is, it does not occur in any of them; which is the more extraordinary as his System of Nosology, which is not comprehensive enough to include many diseases, might easily have found a place for this.

Whence the surrounding parts but little affected; as explained by Mr. Hunter.

In the specific definition it is stated, that peritonitis occurs "with little affection of the subjacent viscera or abdominal walls." In effect it often happens that these are not at all influenced, and whenever they are, it is only secondarily. "If the peritoneum," says Mr. Hunter, Gen. VII. Spec. X. α E. Peritonitis propria. Proper inflammation of the peritoneum.

"which lines the cavity of the abdomen, inflames, its inflammation does not affect the parietes of the abdomen; or if the peritoneum covering any of the viscera is inflamed, it does not affect the viscera. Thus, the peritoneum shall be universally inflamed as in the puerperal fever, yet the parietes of the abdomen, and the proper coats of the intestines, shall not be affected: on the other hand, if the parietes of the abdomen, or the proper coats of the intestines are inflamed, the peritoneum shall not be affected *."

Substance of different organs not equally consenting with their surrounding membranes.

Illustrated.

We hence perceive another proof that the membranous tunics of the different viscera do not hold an equal intimacy of action in every instance. And it would be interesting to follow up the discrepancy, and draw a scale of their readiness or inaptitude to sympathize with the viscera which they cover. The membranes of the brain, as we have already seen, are so peculiarly disposed to partake of the inflammatory action of the parenchyma, as to render solitary inflammation of the one or of the other a rare occurrence. In the lungs the play of relationship is far less conspicuous, and in the viscera of the abdomen it rarely takes place. And it is owing to this circumstance that we are able so generally to draw the line between inflammation of the peritoneum and of the intestines, from the pain being much more superficial in the former than in the latter case, and, in many instances, not accompanied with sickness or any other disturbance of the alvine canal.

Causes.

The causes are those of inflammation in general, as cold, external injuries, and a morbid transfer of action; and, in a few cases, sympathy with the adjoining organs, as in puerperal fever.

Treatment

The treatment is, in like manner, that of inflammation in general, particularly that of E. ENTERITIS, to which the reader's attention is especially directed. Bleeding, both general and local, should be carried into effect co-

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[*] On Blood, &c. p. 244.

Gen. VII. Spec. X. α E. Peritonitis propria. Proper inflammation of the peritoneum. Treatment.

piously and with all possible speed; but purging, though at all times of service in inflammatory affections, is less imperiously demanded than in inflammation of the intestines. Warm stimulant fomentations may be advantageously applied to the abdomen, and blisters in succession: but, after a very free use of leeches, I have found more benefit in applying a large folded flannel wrung out in simple hot water, or water impregnated with aromatic herbs over the whole of the abdomen, and letting it remain there for many hours or till dry, wrapped over with a broad calico or flannel swathe that surrounds the entire body. All we can possibly aim at, in applications of this kind, is a continuation of moist warmth, as in a common poultice; and this is obtained more easily, and with infinitely less fatigue to the patient or danger of giving him cold, than in the ordinary way of applying fomentations. When the bowels have been well opened, opiates may be given with freedom, and especially in unison with ipecacuan or antimonials to determine to the surface.

ϵ E. Peritonitis omentalis. Inflammation of the omentum. Does not readily suppurate.

When the INFLAMMATION commences or is seated IN THE OMENTUM OR EPIPLOON, the pain is more limited, and points rather towards the superior and middle region of the abdomen, a little above the navel; though it sometimes inclines to the right or left hypochondrium. The peritoneum itself does not readily pass into a secretion of genuine pus; and still less so the omentum, which, where ulceration takes place, generally evinces a foul and sanious secretion. Sauvages gives a striking example of this in a woman, who was at first attacked with an acute lancinating pain in the umbilical region; and had a tumour formed towards the right hypochondrium about the size of a man's fist, which by degrees occupied the whole abdomen. By an application of emollient cataplasms, the pain and general swelling were diminished in the course of three days; but a fluctuation in the abdomen was next detected, like that of an ascites: in consequence of which, a trochar was introduced into both sides of the abdomen, and a putrid ichorous fluid was discharged,

Illustrated from Sauvages.

GEN. VII.
SPEC. X.
ε E. Peritonitis omentalis.
Inflammation of the omentum.

which induced the operator to enlarge the opening; when sloughs of the omentum already separated came away with an intolerable stench, and with about two pounds of what Sauvages calls ichorous water. But the skill of the surgeon was overpowered by the disease, and the patient fell a victim to it *.

γ E. Peritonitis mesenterica.
Inflammation of the mesentery.
Mostly complicated with other complaints.

The mesentery has but a small degree of sensibility, and hence, as well as from the greater depth of the seat of the disease, MESENTERIC INFLAMMATION is only discoverable by pressure. If the affection be strictly mesenteric, the symptoms are mild and gentle; but this is a rare case, and chiefly occurs when the glands are obstructed, and any accidental irritation is applied to them. Most commonly it is catenated with inflammation of the spleen, liver, or intestines.

Treatment.

The medical treatment will be the same as in HEPATITIS, or SPLENITIS: though bleeding, in general, effects but little benefit.

SPECIES XI.

EMPRESMA GASTRITIS.

Inflammation of the Stomach.

BURNING PAIN AT THE PIT OF THE STOMACH, INCREASED ON SWALLOWING: REJECTION OF EVERY THING; HICCOUGH; OPPRESSION AND DEJECTION OF MIND; FEVER A SYNOCHUS.

GEN. VII.
SPEC. XI.

INFLAMMATION of the stomach may be either of the adhesive or the erythematic character; and the species hence offers us two varieties with considerably different

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* Nosol. Med. Class III. Ord. III. XVI.

Gen. VII. Spec. XI. Empresma Gastritis. Inflammation of the stomach.

symptoms; which is chiefly, indeed, the result of the peculiar nature of the fever that accompanies this inflammation, already stated to be a synochus, or fever commencing with caumatic, but terminating in typhous symptoms.

Fever different according to the different nature of the inflammation.

For this kind of fever it is not difficult to account. We have often had occasion to state that the stomach is the common centre of sympathy; it is also an organ of acute sensibility; and it is hence impossible for it to suffer from inflammatory action without suffering severely, and without extending its affection very widely. The natural consequence is, that there must be great, and general, and sudden debility, and the fever, though commencing with excess of action, may soon lead to total atony, and fatal consequences.

α Adhæsiva. Adhesive inflammation of the stomach.	The pain very acute; the fever violent.
ϐ Erythematica. Erythematic inflammation of the stomach.	With an erythematous blush extending to, and visible in the fauces; pain more moderate; fever less violent; pulse low and quick.

General remarks and pathology.

Dr. Cullen seems to have been the first writer that distinctly pointed out the nature of these two varieties, which he has unnecessarily advanced to the rank of species, and later writers have justified the expediency of a distinction. This distinction, as already remarked, is produced by the nature of the accompanying fever; and consequently, in a considerable degree, by the nature of the constitution in which the disease occurs. The fever is perhaps in every instance a synochus, the cause of which we have just stated; but, while in a firm and robust habit the febrile course has, comparatively, but little tendency to pass from the entonic action with which it commences, into a dangerous languor and atony; in relaxed and irritable habits it is apt to run into this stage almost from the first, and the synochus degenerates rapidly into a typhoid character.

Gen. VII.
Spec. XI.
Empresma
Gastritis.
Inflammation of the stomach.
General causes.

In both varieties the causes are alike; as external or internal cold suddenly applied in a heated state of the stomach, acrid substances, or excess in eating. The acrid substances chiefly recorded are jalap and other drastic purgatives taken in excess; oil of vitriol; corrosive sublimate; and very large doses of nitre, or quantities swallowed by mistake, as an ounce, or an ounce and a half, of both which we have an example in the Journal de Medicine *. It is also said to have sometimes been produced by a severe paroxysm of cololithus †; and occasionally to have followed upon trichosis *plica*, the matted hair of Poland ‡. A sudden chill by swallowing cold water or some other fluid on a heated frame has been a frequent cause: as has also repelled gout, indigestible food, and especially ardent spirits drunk profusely.

Diagnostics

The symptoms are sufficiently detailed in the specific definition. Several of them are those of cardialgia; but in the latter there is neither fever nor vomiting. From the close sympathy of the stomach with other organs, the disease has sometimes been accompanied with delirium, and in a few instances with hydrophobia. Where the inflammation is violent it destroys in a few days. If no fatal symptom occur within the first week it terminates for the most part favourably. Shiverings and a remission of pain, are, as usual, marks of suppuration.

α E. Gastritis adhæsiva.
Adhesive inflammation of the stomach.
Illustrated.

Of the ADHESIVE VARIETY Mr. Cruikshank has given a good illustration in the case of a young lady who died after two or three days illness, before which she had been in perfect health. "I was called in," says he, "but she was dead before I got to the house. From her history I was at a loss to account for her death: but on opening the abdomen a day or two after, I found the contents of the stomach in that cavity; that they had produced peritoneal inflammation, and killed. On ex-

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* Laflize, Tom. LXXI. Souville, Tom. LXXIII.

† Kaltschmied, Pr. de Ægro inflammatione ventriculi demortuo calculis, &c. Jen. 1757.

‡ De la Fontaine, Chirurg. Med.

GEN. VII. SPEC. XI. α F. Gastritis adhæsiva. Adhesive inflammation of the stomach.

amining the stomach, I found a hole in it large enough to admit the end of my finger. This hole had been formed by absorption of part of the substance of the stomach from scrophulous ulceration: its edges had adhered by inflammation to the under surface of the small lobe of the liver. This inflammation was evidently raised by the powers of the body to prevent the accident which happened: and if no violent vomiting had taken place, and torn this adhesion at this particular time, she might have lived for years notwithstanding the ulcer *."

Remedial process.

Gastritis has often been represented in a more dangerous light than it deserves to be: for in neither variety is it frequently attended with fatal effects under judicious treatment. In the true adhesive form copious and repeated venesections have been very generally recommended, and have often been found of the highest advantage, particularly in robust and vigorous habits. To be, however, of any decided avail, this plan of treatment should be commenced early; for the fever is so apt to pass into a typhoid form, that, after the first two or three days, too much inroad will generally have been made upon the constitutional strength to allow of the use of the lancet. If acrid poisons, or excess of eating, be the cause, an emetic should be administered; but otherwise this, as well as all other stimulants, should be avoided. Gentle cooling laxatives, a blister applied to the pit of the stomach, mild nutritive drinks, nutritious injections, and, if the pain or sickness be extreme, doses of a drachm of the syrup of white poppies, and perhaps about five grains of nitre in an emulsion of gum arabic or spermaceti, will generally be found the most successful plan. It is, however, extremely difficult to get any medicine to remain on the stomach; and hence the best form is that of pills. If suppuration should follow, and the abscess burst, a milk diet with the mildest food, and in small quantities at a time, is the only plan to be pursued. If a gangrene take place, all further exertion will be in vain:

Treatment in the event of suppuration.

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* Anatomy of the absorbent vessels, p. 122.

and we may determine its presence by a sudden cessation of pain, coldness about the præcordia, and languid or intermitting pulse, which are its sure attendants.

β E. Gastritis erythematica. Erythematic inflammation of the stomach. Explained by Mr. Hunter.

Upon the ERYTHEMATIC VARIETY, the following remarks of Mr. Hunter are too valuable to be omitted: and they are the more valuable as they apply to disorders of other internal cavities besides the stomach. "There is," says he, "an inflammation which attacks internal canals which is classed with the erysipelatous; but how far it is the same I do not know. It is certainly not the suppurative. Whatever it is, it may be considered in some of its effects to be in direct opposition to the adhesive and suppurative inflammations: for where the adhesive most readily produces adhesions, there the erysipelatous does not, as in the common cellular membrane; and where the adhesive seldom takes place, excepting from extreme violence, there this inflammation (if erysipelatous) has a tendency to produce adhesions, as in canals or outlets. It also opposes in some degree the suppurative, in being backward in producing suppuration even in those places where suppuration most readily takes place, such as canals and outlets; for there, as above observed, it more readily throws out the coagulating lymph. Whatever the inflammation may be, it is certainly attended with nearly the same kind of constitutional affection. The fever in both appears to be the same, viz. accompanied with debility, languor, &c.*"

Diagnostics.

The erythematic inflammation of the stomach comes on more insidiously than the adhesive; and is best characterised by the inflammatory colour of the fauces, for it usually spreads to these, and the lowness and rapidity of the pulse. The inflammation often extends through a great part of the alvine canal as well as the esophagus; and, after a subsidence of the sickness, produces diarrhœa, and mucous discharges from the bowels. It is sometimes so gradual and tardy in its pro-

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* On Blood, &c. p. 270.

Gen. VII. Spec. XI. β E. Gastritis erythematica. Erythematic inflammation of the somach.

gress as to produce little fever, or even local disturbance, for many days or even weeks. De Haen* has repeatedly referred to this sort of gastritis, and Hennings has described it more at length†.

Remedial process.

If this variety of gastritis be excited by acrid or poisonous substances, a brisk emetic should be exhibited with as much speed as possible; and afterwards such antidote as the character of the poison may point out: opposing acids to alkaline, and alkalines to acid erosives, and the most active stimulants to narcotics. When the cause is internal, mild, diluent, and cooling drinks are to be employed freely. The infusion of roses will often prove one of the most serviceable medicines we can make use of; blisters should be applied and repeated, and the bowels kept cool by laxative clysters.

Found also on other occasions.

Inflammation of the stomach is also found in the one or the other of its varieties, as an occasional symptom in aphtha, measles, small-pox, and other exanthems; and perhaps, in repelled herpes, scabies, and similar eruptions.

SPECIES XII.

EMPRESMA ENTERITIS.

Inflammation of the Bowels.

GRIPING PAIN IN THE BELLY; TENDERNESS, AND VOMITING: FEVER A SYNOCHUS.

Gen. VII. Spec. XII.

In inflammation of the stomach the pain is seated higher, and is rather burning than griping; this last, also, has

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* Rat. Med. Part VI. IX. XIV. passim.

† Beschreibung der Kennzeichen und Kunder Entzündung des Magens and der Gadärme.

Gen. VII. Spec. XII. Empresma Enteritis. Inflammation of the bowels.

usually some degree of hiccough, and great dejection of mind; neither of which belong to inflammation of the intestines; and it is by these characters that the two are to be distinguished from each other. Stoll adds, that intestinal inflammation is also accompanied with a suppression of urine: but we cannot rely upon this as a specific symptom.

How distinguished from gastritis.

Enteritis, like gastritis, exhibits two varieties:

α Adhæsiva. Adhesive inflammation of the blood.	Very acute, fever violent; vomiting frequent; and costiveness obstinate.
β Erythematica. Erythematic inflammation of the bowels.	Pain more moderate; fever less violent; little vomiting, and diarrhœa instead of costiveness.

Why accompanied by a synochus.

The causes of both, as also of the accompanying fever being a synochus, may be understood from the remarks already offered upon gastritis; the intestines partaking in a very considerable degree of the character of the stomach.

General causes.

To the causes enumerated under gastritis may be added some natural or accidental organic mischief in some part or other of the intestinal canal, as ventral, inguinal, or other hernias, or introsusceptions of various kinds; or infarctions from coprostasis, scybala, or enterolithus. The plica polonica, or matted hair, is said by De la Fontaine to be a cause of this species, as other writers affirm it to be of gastritis.

α E. Enteritis adhæsiva. Adhesive inflammation of the bowels. Description.

The progress of the FIRST VARIETY usually commences with a sense of coldness or shivering, and an uneasiness in some part of the belly, at first remitting or intermitting, but gradually acquiring permanency, and rising into an acute pain. The pain now spreads over the whole abdomen, which is tense and tender to the touch, though less so than in peritonitis; there is great flatulency accompanied with occasional spasms that shoot backward to the loins, obstinate costiveness, and unconquerable vomiting. The pulse is small, hard, and fre-

Gen. VII. Spec. XII. α E. Enteritis adhæsiva. Adhesive inflammation of the bowels.

quent, but has sometimes been soft: the tongue dry; thirst extreme; urine high-coloured, small in quantity, and discharged with difficulty; the breathing is laborious; and from the contraction of the abdominal muscles the patient is perpetually bending forward. If no beneficial change take place, all these symptoms become aggravated; instead of feculent stools, there is an ineffectual straining, with a small mucous discharge; and with the increase of the retching the feces burst through the valve of the colon, and are occasionally thrown up from the stomach. At length the torture suddenly diminishes; and the patient appears to have obtained relief: but his pulse intermits, his face grows pale, his extremities cold, convulsions succeed, and he sinks in death.

Prognostics.

The general termination, therefore, when unfortunate, is that of gangrene; for it is rarely that the inflammation runs into a suppurative state. If in the course of the first two, three, or even four days, a free feculent discharge can be procured from the bowels, the vomiting and pains will gradually diminish, the pulse abate in quickness, and the patient be in the way of recovery.

Curative plan.

In treating this complaint, it is hence of the utmost importance to procure free evacuations, for the cure depends almost entirely upon our success in this respect. Yet the difficulty is often very great, and increased from the tendency of the stomach to reject whatever medicines are introduced into it. Most practitioners commence with bleeding, which they urge very copiously, and repeat every six or eight hours, according as the pulse will bear the lancet. The remarks we have made upon this practice, under *gastritis*, will apply to the present species. If the disease occur in a patient of a hardy and vigorous habit, and particularly if we have an opportunity of employing venesection within the first day or two, we shall commonly find it of essential service: but

Venesection how far useful.

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* Περι Νουσῶν. III. p. 491.

GEN. VII. SPEC. XII. α E. Enteritis adhæsiva. Adhesive inflammation of the bowels.

In what cases mischievous.

if we do not succeed, we shall assuredly hasten the stage of gangrene, and abbreviate the term of remedial operations. And hence, unless free bleeding can be employed early, and the constitution evinces a tolerable portion of vigour, there is no inflammation in which the lancet is less likely to be serviceable, or may become more mischievous. To local bleeding, even under the conditions we are now supposing, there is less objection; but we have less chance of benefit by it than in peritonitis.

Cathartics mild rather than harsh, if of sufficient power.

From the first, therefore, we must attempt cathartics. If the stomach will retain the milder, as castor oil, neutral salts, or senna, these are by far the most adviseable; as our object should be to diminish instead of increasing the irritation of the intestines. But in the first species this is rarely the case; and we must hence, without loss of time, apply to those that are more acrid; as calomel in combination with the colocynth pill; assisting their operation by injections frequently repeated, and in as large quantity as the bowels will retain them.

Acrid purgatives not necessarily augmentive of inflammation.

Explained.

It does not necessarily follow that the irritation of these more acrid purgatives will add to the inflammatory irritation; nor do we always, or even commonly, find any such effect. For, firstly, the operation of the two irritations is very different; and by exciting the former we may even diminish or take off the latter by a transfer of action, in the same manner as we take off inflammation from any other organ by the application of a blister to some neighbouring part. Secondly, the direct effect of the cathartic is to restore a natural action, the peristaltic action of the intestines, which it is the direct effect of the inflammatory action to oppose. And thirdly, we find, in fact, the beneficial influence of such a practice, not only generally, but almost uniformly, and are incapable of accounting for it upon any other principle.

Opiates when to be given.

Opiates would be desirable through the whole course of this disease, but that, in their general intention, they add to the costiveness if given alone, and retard the effect of purgatives if given in conjunction with them.

GEN. VII. SPEC. XII. α E. Enteritis adhæsiva. Adhesive inflammation of the bowels.

Nevertheless, if, after copious bleeding, the costiveness should be intractable, and the flatulency and spasmodic pains very distressing, it will be better to trust for a few hours to two or three grains of opium alone, and withhold the purgative plan for the present. For the costiveness is chiefly the result of spasm: and if we succeed in allaying the spasmodic action, a cathartic will answer readily, and sometimes the bowels have been moved even by the tranquillity alone which the opiate has produced.

Fomentation, blisters, and epithems.

Fomentations and blisters to the abdomen form a regular course of the therapeutic plan; and have, no doubt, been occasionally serviceable; but, like local bleeding, they are less so in the present disease than in peritonitis. And where fomentations are adviseable, I prefer the epithem of a folded flannel wrung out in hot water, and confined with a swathe, as already recommended in peritoneal inflammation, to all other fomentations whatever.

Copious injections of warm-water.

Injections of warm water alone, forcibly thrown up the rectum in as large a quantity as the bowels can be made to contain, are moreover often found of essential benefit, and are generally to be preferred to the warm-bath, which, by adding to the debility, has accelerated the approach of gangrene.

After the bowels have been freely emptied, diaphoretics, and especially combined with opiates, will be the best plan we can pursue; and, if the stomach become quiescent, the patient should drink freely of diluents.

Singular rally of the constitution when apparently sinking.

There is a singular fact, noticed by Rhodius*, which sometimes occurs in this disease, and is peculiarly worthy of notice, as sustaining our hopes to the last: and it is this; that occasionally, in the extreme moment of a seeming mortification, a sudden revolution takes place, and stools are evacuated; and this, too, after the extremities have begun to grow cold, and an apparently

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* Cent. II. Obs. 69.

Gen. VII. Spec. XII. α E. Enteritis adhæsiva. Adhesive inflammation of the bowels. How in such case to be assisted.

deadly languor has overpowered the frame. In such case, we must snatch the patient from impending death by a free use of wine, and warm generous cordials; closely attending, at the same time, to a copious discharge from the bowels, of which, with the liberal plan now recommended, we need not be afraid, and which we should be extremely cautious of checking by opiates.

β E. Enteritis erythematica. Erythematic inflammation of the bowels.

From the less threatening character of the symptoms, as they show themselves in the ERYTHEMATIC VARIETY, this affection, as Rothboel has well observed, often exhibits a fallacious appearance, and is misunderstood *. And it has hence been described on the continent, under the names of occult, apyrectic and anodyne † enteritis. Its real nature, however, is as we have explained it above. It has been well ascertained that the seat of this variety is sometimes in the external coat of the intestines; and it is said, by some writers, that this is the most common seat. It is not easy to determine upon this point: nor always, at its commencement, whether the inflammation be of the one variety or of the other, the modifying causes being, in some constitutions, and some seasons of the year and temperaments of the atmosphere, so nicely balanced as to leave the course doubtful. A case of this kind occurred to me in July, 1805, in a healthy and active young gentleman, thirteen years old. The abdomen was tense and tender, the intestinal canal painful through the greater part of its extent; the pulse quick, and moderately full; the skin very hot and dry; the blood, when drawn from the arm, without any buffy coating; the sickness incessant, with deep anxiety and oppression. The greater part of these symptoms indicated the adhesive variety; but, as the morbid signs increased, the stomach evidently partook of the affection, and shortly afterwards an erythematic sloughing appeared in the

The two varieties not always to be distinguished at first.

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* Dissert. sistens Observationes circa fallaciam signorum in Inflammationibus Abdominalibus. Hafn. 1776.

† Ploucquet, Initia. Vol. v. 108.

GEN. VII. SPEC. XII. β E. Enteritis erythematica. Erythematic inflammation of the bowels.

throat on the fourth day from the attack, evincing the real nature of the inflammation, and that it had extended up the whole of the esophagus. On the sixth day the patient died.

Bleeding, which was repeated within about twelve hours, did not, in this case, prove of any benefit; though it may be justified from the mixed character of the disease. But in distinct and simple examples of erythematic inflammation, it ought, unquestionably, to be abstained from: and acids, and the milder tonics, and bitters, as infusion of roses, cascarilla bark, and cinchona, supply its place.

Singular cause of production.

I have said that enteritis is sometimes a result of hernias. It has also, occasionally, been produced by a forcible protrusion of a part of the intestinal canal through the anus; of which a singular instance is given in the Medical Transactions, in a paper communicated by Dr. Latham*: the part of the prolapsed intestine was very considerable, and the injury was occasioned by the passage of the wheel of a cart over the loins; a portion of the mesentery was protruded with that of the gut; gangrene supervened to the inflammation, and the prolapsed mesentery and intestine were cut off above the line of gangrene; the latter to a length of not less than fifty-seven inches, measured by a string applied to the outward surface. The patient, who was a boy, recovered; had motions regularly from the truncated extremity of the remaining intestine; and was able afterwards to walk twelve or fourteen miles a-day. He had no power, however, of restraining his motions, so as to postpone the evacuation.

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* Vol. IV. Art. XXIV.

SPECIES XIII.

EMPRESMA HEPATITIS.

Inflammation of the Liver.

TENSION, SORENESS, AND PAIN IN THE REGION OF THE LIVER; PAIN ABOUT THE RIGHT SHOULDER; DIFFICULTY OF LYING ON THE LEFT SIDE; SHORT, DRY, COUGH.

INFLAMMATION of the liver, which may in general be sufficiently known by the above characters, has also two varieties, dependent upon its more rapid and violent, or more tardy and obscure march.

GEN. VII. SPEC. XIII.

α Acuta. Acute inflammation of the liver.	In which the above symptoms are clearly marked, and the character of the disease is decisive.
β Chronica. Chronic inflammation of the liver.	In which the specific character is obscure; and the existence of the disease suspected from a previous exposure to its causes, in connexion with an occasional recurrence of the pathognomic symptoms, accompanied with a slight degree of fever.

Sauvages, on the authority of Amati, has given an erysipelatous, or, as it should rather be, an erythematic, variety of this disease, as Lommius has, also, done of pneumonitis; but the parenchymatous viscera do not seem to be subject to an inflammation of this description, as Dr. Cullen has correctly observed; and as has been

Gen. VII. Spec. XIII.

since confirmed by the remarks of Mr. Hunter which we have already quoted.

α. E. Hepatitis acuta. Acute inflammation of the liver.

The acute variety commences with the ordinary symptoms of visceral inflammation; chillness, succeeded by heat, frequent pulse, and a furred tongue: the bowels are irregular, mostly costive; the evacuations little tinged with bile, the urine often saffron-coloured; the skin is dry, the thirst extreme, with occasional sickness.

General remarks.

No physiologist has yet been able to explain the cause of the pain so generally felt in the right shoulder. It is however sympathetic of other affections of the liver, as jaundice, or chololithus, as well as of hepatitis; and hence it should seem to be produced by almost any morbid excitement of this organ, whether from inflammation or the obstruction of gall-stones. The cough, which is often very distressing, is easily accounted for from the vicinity of the diaphragm to the seat of disease, and its sympathy with the liver. The sickness of the stomach is from the same cause.

Not always accompanied with a jaundiced skin:

The disease is sometimes accompanied with a jaundiced colour of the skin; and Sauvages and Sager have made such a colour a specific symptom; but it is not always that the bile regurgitates, and hence, such an appearance ought not to be enumerated among the pathognomic characters.

which is also common to other affections.

Even where it exists it is not a distinct symptom of hepatitis; for, to say nothing of proper jaundice, the feces, as Dr. Latham has well observed, may be light-coloured, and the eyes, skin, and urine peculiarly yellow, from the pressure of an indurated pancreas upon the bile ducts, and an obstruction of their course. And hence Dr. Latham imagines that an enlargement of the pancreas has sometimes been mistaken for hepatitis, and a diseased ovarium still more frequently. On which account it demands a very nice examination of the liver before we can speak with decision, and a pretty tolerable assurance to ourselves, that there is no enlargement of either of the other organs.

Dr. Saunders, and with some plausibility, suspects the

Gen. VII. Spec. XIII. α E. Hepatitis acuta. Acute inflammation of the liver.

acute variety is owing to an inflammatory state of the hepatic artery, and the chronic to a like state of the vena portæ. Winslow ascribes both to an inflamed state of the ramifications of the vena portæ, which, in his opinion, constitute the seat of the disease; while Cullen refers us to the hepatic artery alone, and limits the seat of inflammation to its extremities. Dr. Heberden does not incline to believe that the liver is primarily affected, but only influenced by a phlogistic diathesis, or preceding inflammatory fever.

Proximate cause as conjectured by Saunders: by Winslow: by Cullen: Heberden.

If the inflammation originate in the membranes, the pain, as in most other cases of membranous affection, is peculiarly pungent, like that of a pleuritis; the fever is severe, the tension very considerable, the pulse frequent, strong, and hard; the urine generally high coloured. When the substance of the liver is primarily affected, the pain and pyrexy are far less acute, and especially at first; but they increase with the progress of the disease, or, in other words, as it extends to the membranes, and not only darts to the right shoulder, but sometimes shoots as far as the throat and clavicle.

Symptoms of membranous affection: Of parabysmic affection.

Where the symptoms are most severe, and we have reason to suspect that the disease is confined to the membranes, the duration is often short, and the termination is in most cases that of resolution. But when less active, and seated in the parenchyma, it generally tends to suppuration; and if the convex side of the liver be the part affected, a tumour is visible externally, the cough becomes aggravated, and there is a difficulty of breathing. If adhesions have preceded the suppuration, the pus points to the skin, and the abscess opens on the surface; but if it break internally it generally proves fatal by inducing a hectic, though sometimes, in consequence of fortunate adhesions, the abscess discharges itself into the hepatic duct, and the pus is carried off by this channel. It has, occasionally, by the same means, made its way into the stomach and intestines, where the abscess has been very large. In which case, however, immediately upon the bursting of the vomica, the patient throws off, by sickness or by purging, a large mass of most

Prognostics.

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offensive matter, often filling the whole house with its noisome smell, and dies in a few hours. In like manner, the pus has occasionally formed an empyema in the thorax; and, in a few instances, has been discharged from the lungs.

Sometimes terminates in scirrhosity.

The disease sometimes also terminates in scirrhosity; in which case the induration bears an extent in some measure proportioned to the range of the preceding inflammation, and may often be felt by applying the hand to the region of the organ. This, however, is a more frequent result of the second or chronic variety.

Why found mostly among the robust, and in temperate climates.

In order to induce acute hepatitis, it is necessary that the organ of the liver, at the time of attack, should be in a state of at least moderate health and vigour; for it is in this condition only, that inflammation running through its regular stages can take place, and hence the acute variety is found far more frequently in temperate, than in intertropical climates; and in the latter more frequently among new comers, than among those that have been long habituated to the climate, and whose livers have been weakened and relaxed by the greater heat of the sun:

Illustrated,

"Among the men of the eighteenth regiment," says Mr. Christie, who was stationed at Trincomale, and had the care of the entire garrison in 1798, "I found for the first six or eight months, the disease was much more frequent, much more violent in its symptoms, showed more tendency to suppuration, and was more sudden in its crisis, than with the company's European troops, who had been long in India, although the latter were the most debauched. Among the natives hepatitis does not often occur; out of a thousand native troops, I did not, in the course of three months, meet with more than two cases of liver-complaints, which is comparatively a very small proportion*." There is, however, a striking distinction between the state of the bowels as affected by this disease in hot and in temperate climates. In the latter it is

Bowels differently affected in hot and temperate climates.

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* Letter to the Editor of the Medical and Physical Journal, May 1798.

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rarely we have any diarrhœa, and often an obstinate costiveness, the evacuations being mostly untinged with bile. In the former, from the higher degree of irritation that prevails, and the greater extent of its range, a bilious flux is so frequent as to be almost a pathognomic symptom; and as the gorged vessels are apt to give way from debility, this is sometimes intermixed with blood.

Remedial process in temperate climates. Bleeding.

In our own climate, bleeding at the commencement of the disease is generally found serviceable, and ought to be prescribed as speedy as possible; certainly before the fifth day; and be repeated generally or locally, as the violence of the symptoms may require and the strength of the constitution allow.

Purging.

Free purging, with calomel and Epsom salts, should immediately follow; and mercury be at the same time introduced into the system by the stomach, or by inunction, or by both. From the costiveness that usually accompanies the disease it is rarely necessary to unite the mercury with opium; though where it irritates the bowels, the latter should unquestionably be given; as it should also to allay the cough, when this symptom is very distressing and prevents sleep. The mercurial course, as recommended by Sir James M'Grigor [*], should be steadily persevered in, not only in hot climates but in temperate, till a salutary change has been effected, or salivation has been freely excited. It will often be found, however, that the patient will bear a long continuance of the mercurial plan without any affection of the mouth; and will gradually and insensibly improve under it; the soreness and tension subsiding, the cough diminishing, the pulse becoming slower, and the heat and dryness of the skin yielding to a pleasant moisture; all which are prognostics of a favourable issue.

Mercurial course.

Blisters.

The application of large blisters over the hypogastric region in succession, is recommended by most practi-

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[*] Medical Sketches, passim.

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tioners, but I have not found them successful; and have evidently derived more benefit from fomentations, epithems, and the warm bath.

Diaphoretics.

Treatment in case of suppuration.

Diaphoretics should cetainly form a part of the curative process; and they combine admirably with the mercurial treatment; particularly the antimonial preparations. Cooling, diluent, and even acidulated drinks should be taken copiously; the diet consist chiefly of light farinaceous foods; and the chamber be well ventilated. If from sudden shiverings, and remission of the quickened pulse, we have reason to believe suppuration has taken place, columbo, the mineral acids, and above all the bark, where it can be retained, should be given freely; the cinchona, at least in the proportion of from half a drachm to a drachm, five or six times a-day; and this whether the abscess be likely to burst externally or internally; and if the former, the direction should be encouraged by maturating cataplasms, and the abscess be opened as speedily as possible. The discharge is sometimes very considerable in quantity, and amounts to several pints; the pus is occcasionally found pure, but more generally intermixed with coagulable lymph or some viscid, yellow, fluid. It is at times lodged in different sacs, and hence subsequent tumours ensue, and subsequent openings are necessary*.

Pus sometimes absorbed with success.

It is not always, however, even after suppuration has taken place, that the abscess must necessarily open in any direction; for the following case will show that when we have full reason to believe such a result has occurred, the fluid may be carried off by absorption and the organ be restored to a sound state.

Case illustrative of such termination.

In the middle of last February, I was requested to meet in consultation Mr. Patten, and several other medical practitioners of high respectability, at Professor Gregory's of Woolwich Common, whose son, eight years of age,

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* Recueil d'Observations de Medicine des Hôpitaux Militaires, &c. Art. par M. Boucher, Tom. II. 4to. Paris.

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The attack at first obscure. Description.

had, for nearly three weeks, been labouring under a considerable degree of fever, accompanied with a mixture of symptoms that gave no small degree of obscurity to the real nature of the complaint. The bowels were at this time obstinately costive, the pulse at a medium of a hundred and thirty strokes in a minute, but varying from ten strokes above to ten below; there was a short, dry, distressing cough, and a slight difficulty of breathing; yet no observable pain about the right shoulder: the skin was nearly of its natural hue; the motions, when procured, rather less yellow, and the urine rather more so than in common health; the nights were without rest, and very fatiguing. The result of the symptoms had hitherto rather led to an idea of mischief in the chest; but finding on examination that there was a considerable degree of tension and tenderness in the hypogastrium, rather verging towards the right, and connecting these signs with the preceding, I had no hesitation in pronouncing the disease to be hepatitis, and the opinion was unanimously adopted.

Pronounced to be hepatitis.

Progress and treatment.

As the pulse, from the length of time the disease had now continued, would not allow of general bleeding, twelve leeches were instantly applied to the region of the liver; an active cathartic was prescribed; and the patient put upon a course of calomel and antimonial powder, of the former of which he took three or four grains a-day; with an opiate at night. And, after the application of the leeches, a large flannel wrung out in hot water, was applied over the whole of the abdomen, and confined with a calico swathe, in the manner already recommended in peritonitis; the warmth and moisture being rendered permanent by a renewal of the hot-water as soon as the flannel became dry, though it rarely required to be changed oftener than two or three times in the twenty-four hours. The application was peculiarly grateful to the patient.

Favourable impression.

By this process a very favourable impression appeared to be made on the disease from the first; the pulse sunk to less than a hundred and twenty, and sometimes to

Gen. VII. Spec. XIII. α E. Hepatitis acuta. Acute inflammation of the liver.

less than a hundred; the cough was less troublesome, the nights more refreshing, and the patient was able to retain more food. One of the most obstinate symptoms was the costiveness, which no ordinary aperient, even though aided by injections and the use of the calomel, was capable of alleviating; and which was only occasionally relieved by a combination of extract of jalap with that of aloes or gamboge, or both.

Fresh exacerbation,

In about a fortnight however, all the symptoms became more violent; the pulse rose to a hundred and forty, the cough was more troublesome; the tension over the abdomen was more general, and there was an evident fluctuation over the whole abdomen, indicative of ascites. The fomentation was omitted, but the calomel was continued, and elaterium, gradually increased to three grains at a dose, in conjunction with the same quantity of extract of jalap, was given as a purge. In no proper proportion however did it operate as such; it sometimes produced a watery evacuation or two, but never to any extent, and occasionally excited vomiting. It was omitted, and the digitalis, in unison with infusion of roses doubly acidulated, was given in free doses together with the calomel.

with ascites.

Violent shivering fit and hectic sweats.

At this time a violent shivering-fit took place, which made the teeth chatter; the pulse seemed rather to remit in rapidity, but the night was passed in hectic perspirations. Suppuration had no doubt commenced. The digitalis and calomel were omitted, a strong infusion of columbo acidulated with equal parts of nitric and muriatic acid prescribed in its stead; the right hypochondrium was covered over with a large plaster of the emplastrum ammoniaci cum hydrargyro; animal food was enjoined, and a small quantity of wine allowed. All the symptoms once more diminished; the tension and perspiration subsided, the fluctuation was lost, the cough ceased, and the nights were refreshing. The patient continued to amend about a fortnight, when the morbid symptoms again returned, though in a slighter degree, and seemed to show that some other part of the liver was now affected. The former treatment was resumed; leeches, succeeded

Symptoms diminish.

Renewal of the symptoms.

Gen. VII. Spec. VIII. α E. Hepatitis acuta. Acute inflammation of the liver.

by an ammoniac-mercurial plaster, were applied to the part affected; calomel was given in the proportion of two grains a day, but the tonic regimen, in the debilitated state of the patient, was not relinquished. In a few days this plan also was found to produce a beneficial effect: every symptom again subsided; and the little patient, in about three months from the commencement of the disease, was restored to perfect health.

Case explained.

It is clear that in this protracted and complicated case the liver was successively attacked with inflammation in different parts; and that, had the whole advanced to suppuration, and opened externally, there would have been distinct sacs or abscesses in succession to each other. And it appears also, from the history of the symptoms, that the first and last inflammations were carried off by resolution; and the second by suppuration, the pus being absorbed and the cavity healing without exposure.

β E. Hepatitis chronica. Chronic inflammation of the liver. Description.

In CHRONIC HEPATITIS all the specific symptoms, as already observed, show themselves obscurely. The pulse is something quicker tha n uual, and there is an obtuse pain in the region of the liver; but such as would not perhaps be noticed if it were not inquired into and the organ pressed upon; and there is also an indistinct uneasiness generally, though not always, about the right shoulder. But in conjunction with the proper hepatic symptoms, the most obvious are those of dyspepsy and atrophy; the appetite fails, the stomach is capricious, the animal spirits flag, and the flesh wastes away. The bowels are generally costive, and the stools often clay-coloured, though not always; and there is usually a sallowness on the skin. The disease slowly advances to suppuration, or terminates in a scirrhous induration; but in many instances, and especially after a habit of hard eating or drinking, is the index of a broken-up constitution.

Excess.

Excess in eating and drinking, or indeed in any other voluptuousness, is the common cause of this variety of hepatitis in temperate regions; though it sometimes follows upon obstinate quartans. It is, however, a more

Gen. VII. Spec. VIII. ℭ E. Hepatitis chronica. Chronic inflammation of the liver.

frequent affection in hot climates, where, as already observed, it is far more apt to occur than the preceding variety. And it is on this account we see so many persons returning annually to our own country from the East or West Indies, with enlarged livers, irregular fever, indigestion, costiveness, fulness in the right hypochondrium, white stools, yellow complexion, dry cough, disturbed sleep, and dejected spirits; occasionally some of these symptoms being wanting, and occasionally others. In all such cases the organ is torpid, debilitated, and irritable, and the cure must depend upon our ability to give it fresh tone and vigour. The general congestion is most effectually removed by smaller doses of calomel than advised in the acute variety, so as to produce an alterant effect, and gently excite the sluggish secernents into a state of renewed activity. And, in conjunction with these, we are to employ warm aromatic bitters; and, where they agree with the stomach, the mineral acids. Dandelion, as recommended by Boerhaave, and Bergius, has often been found serviceable. Dr. Pemberton has of late paid much attention to its virtues, and has seen it of decided advantage in incipient scirrhosities of the liver and other abdominal organs; and strongly recommends it in doses of half a drachm of the extract twice a-day *. We cannot, however, always depend upon this preparation, and hence, as a general rule, it will be more adviseable to employ the decoction.

Treatment in severer cases:

in slighter cases.

In slighter cases, which have nevertheless compelled a return from India after a residence of eight or nine years, I have found all the symptoms vanish before a steady use of Plummer's or the blue-pill, taken every night for a month; and the Cheltenham air and waters, for the same period of time, afterwards.

Effects of a scirrhous infarction.

Where a chronic inflammation of the liver has terminated in a scirrhus of the whole organ or of a great part of it, the blood is obstructed in its circulation, congestion

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* Treatise on the Diseases of the Abdominal Viscera.

takes place in other organs, and we often meet with very extensive hemorrhages from the lungs, nostrils, stomach, or anus. These discharges are rarely, perhaps never, of service in chronic cases, and only contribute to weaken the system. But in acute cases, constituting the first variety, by diminishing the phlogotic action, they are often of very essential use in inflammation of the spleen as well as of the liver; and may perhaps be regarded as critical. Boerhaave* has quoted, upon this subject, the remarks of Hippocrates and Galen, in confirmation of this fact; but they seem to have laid down an unnecessary distinction in contending that the hemorrhage from the nose, in order to be critical, must take place *κατ’ εὐθυωρίαν*, or in a direct line; in other words, from the right nostril in inflammation of the liver, and the left in inflammation of the spleen; for we have numerous examples of benefit in both affections from which side soever the blood has issued.

Gen. VII. Spec. XIII. ε E. Hepatitis chronica. Chronic inflammation of the liver.

Extensive and dangerous hemorrhages.

Useful instead of dangerous in the acute variety.

Distinction of Hippocrates unfounded.

SPECIES XIV.

EMPRESMA SPLENITIS.

Inflammation of the Spleen.

HEAT, FULNESS, AND TENDERNESS IN THE SPLENIC REGION; WITH PAIN UPON PRESSURE.

Of the use of the spleen, as observed in the Physiological Proem to the first class, we know little or nothing. It secretes no peculiar fluid except what serves to produce

General inacquaintance with the use of the spleen.

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* Van Swieten Comment. § 923-4. Hippocr. in Prognostic. Tom. VIII. p. 613. Galen. De Crisibus. lib. III. cap. IV.

Gen. VII. Spec. XIV. Empresma Splenitis. Inflammation of the spleen.

a change in its own blood, which is of a dark livid colour, and coagulates with difficulty. It is commonly supposed to be an organ auxiliary to the liver; and it is unquestionably subject to all its ailments; voluptuous living, however, and even the heat of a torrid sun, affect it less; but obstinate tertians and quartans more, and render it sooner congestive and scirrhous.

Description.

Inflammation of the spleen, together with the symptoms given in the definition, is accompanied with the usual pyrectic signs; and often with a pain extending over the whole of the abdomen, but particularly in the left side, and shooting from the diaphragm to the left shoulder. There is also not unfrequently a dry, short cough, and sense of constriction in the præcordia, sickness or nausea, and a discharge from the rectum of black or livid blood, from a rupture of some of the splenic vessels.

Causes and treatment.

The common causes of inflammation of the spleen, are the same as those of the liver; and the treatment needs not essentially vary, as the progress and terminations of the disease are not different. In India, where it is more common than in temperate climates, the native practitioners use punctures and scarifications.

Splenalgia, what.

The splenalgia, or pain in the spleen, of many writers, is for the most part a slight attack of this disease with some small degree of fever: and parabysma *splenica*, is a frequent result of both. In this last state the organ has been sometimes extirpated, either partially or wholly, without injury to the general health *.

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* Eph. Nat. Cur. Dec. I. Ann. IV. V. Obs. 164. Ann. VII. Obs. 150. Valisneri, opp. III. p. 128.

SPECIES XV.

EMPRESMA NEPHRITIS.

Inflammation of the Kidneys.

PAIN IN THE RENAL REGION; FREQUENT MICTURITION; VOMITING; NUMBNESS OF THE THIGH ON THE AFFECTED SIDE; RETRACTION OF THE TESTICLE.

GEN. VII. SPEC. XV.

General causes.

THE general causes of this species are whatever obstructs the flow of the fluids in the vessels of the kidneys; as a wound, contusion, tumour, strain of the muscles of the back that press on the kidneys, excess of horse-exercise, various acrids conveyed to the kidneys by the course of the circulation. It is, however, most frequently met with as a secondary disease, resulting from calculous matter blocking up the tubuli uriniferi, or from calculi formed in the pelvis of the kidneys, and obstructing that cavity or the canal of the ureters, concerning which we shall have to treat under the genus LITHIA, embracing calculous concretions in the urinary passages.

Mostly a secondary disease.

Symptoms.

The symptoms enumerated in the specific definition are sufficient to indicate the presence of nephritis, though the numbness and retraction of the testicle are common to calculi in the ureters or body of the kidney, even when there is little inflammation present. In the case before us, however, the skin is usually hot and dry, the body costive, and motion, and even an erect position, is accompanied with considerable uneasiness. By the last sign we may distinguish the disease from an inflammation of the psoas, or almost any other adjacent muscle: while the immediate seat of pain separates it from colic, even when it is attended, as it is occasionally, with ventral gripings.

How distinguishable from other affections.

Gen. VII. Spec. XV. Empresma Nephritis. Inflammation of the kidneys. Prognostics.

Where the disease is violent, the urine is discharged in small quantity, and of a pale hue. And hence, if the urine become higher coloured, be secreted in a larger proportion, and be at length thick and mixed with mucus, a gradual relief may be expected to follow, and the cure will be effected by a copious flow. The disease sometimes passes off also by a metastasis. But if the symptoms be protracted beyond the seventh day, and there be stupor or heaviness in the organ, instead of acute pain, with frequent returns of chilliness and shivering, we have reason to expect that an abscess will ensue: in which event the pus may be discharged into the pelvis of the kidney, the abdomen, or, in case of adhesions, externally through the integuments and the skin. The first is the most favourable issue, next to that of resolution; the last is often succeeded by a cure, but an evacuation of pus into the cavity of the abdomen rarely. In some instances the suppuration has been so considerable as to destroy the substance of the affected kidney entirely, and leave nothing but the external membrane. Yet there are cases in which a patient has recovered even in this state, and the office of secretion has been performed by the sound kidney alone.

In case of suppuration, pus how discharged.

Sometimes gangrene ensues.

Gangrene occasionally ensues, and is indicated by a sudden remission or cessation of pain; after great violence of vascular action; accompanied with cold sweats, a sinking pulse, discharge of black urine, and the other symptoms of approaching dissolution.

Treatment.

In attempting a cure of nephritis, we should commence with copious bleeding; and in this case we may most conveniently employ cupping-glasses, applied to the region of the kidnies. Saline purgatives should follow; and then oleaginous or mucilaginous emulsions, with small doses of nitrate of potash, or tincture of digitalis. The last has often proved highly serviceable in taking off the arterial action that maintains the inflammation, and at the same time in augmenting the urinary secretion. The loins should, at the same time, be covered with a large folded flannel wrung out in hot water, and confined as already described in the case of peritonitis; and copious emollient injections should be frequently thrown up the rectum, and suffered to remain there as long as the patient may be able to retain them. The rest of the treatment and regimen should be that of inflammation in general.

Gen. VII. Spec. XV.

SPECIES XVI.

EMPRESMA CYSTITIS.

Inflammation of the Bladder.

PAIN AND SWELLING IN THE HYPOGASTRIC REGION; PAINFUL OR OBSTRUCTED DISCHARGE OF URINE; TENESMUS.

Gen. VII. Spec. XVI. Idiopathic inflammation not common.

The bladder is often irritated and inflamed by viscid substances that pass into the circulation, and particularly by cantharides, ardent spirits, and terebinthine essences or balsams. Idiopathic inflammation is not a frequent disease; yet it occasionally occurs as the bladder is subject to the common causes of inflammatory affection: and it takes place both in its exterior coat, and internal mucous membrane.

Distinctive characters.

If the lower part of the bladder be chiefly affected, the pain will extend to, and take the course of the perinæum. If the seat be in the neck of the organ, there will be a retention of urine with a constant urgency to evacuate; if in the fundus, the urine will flow stillatitiously, and without ceasing; the bladder will give a feeling of being constantly full; and the patient will be perpetually and fruitlessly striving to empty it. In this affection there is usually great restlessness and anxiety, with cold extremities, vomiting, delirium, and other marks of great general irritation: the disease runs its

Disease proceeds rapidly:

GEN. VII. SPEC. XVI. Empresma Cystitis. Inflammation of the bladder.

course with rapidity, and subsides, or destroys the patient, in a few days.

and terminates variously.

It terminates, like all other inflammations, most favourably by resolution. But if this do not take place, it passes on to suppuration or gangrene; the diagnostics of both which are those already noticed in the preceding species. If suppuration take place, the pus may be discharged by the urethra, which is its happiest outlet; or it may follow the course of the ulceration, and be emptied into the cavity of the abdomen; or, if adhesions have been formed with the subjacent cellular membrane, it may work its way in a sinuous direction and find an opening in some part of the perinæum. Of the last two terminations the first is almost always fatal; and the second is extremely troublesome and tedious, though a cure is usually effected at last.

Treatment.

Repeated bleedings, aperients, and relaxants, with copious emollient injections, suffered to remain in the rectum as long as possible, form the chief part of the plan of cure. Blood should be drawn both generally and locally, and a large bladder about half full of warm water be kept constantly over the pubes. The warm bath has also been frequently of essential service. When the urine is actually suppressed, it must be cautiously evacuated by a catheter.

SPECIES XVII.

EMPRESMA HYSTERITIS.

Inflammation of the Womb.

PAIN, SWELLING AND TENDERNESS IN THE HYPOGASTRIC REGION; HEAT, PAIN AND TENDERNESS IN THE OS UTERI: VOMITING: PULSE RAPID.

Gen. VII. Spec. XVII.

This species offers us two varieties, according to the condition of the organ at the time of attack:—

α Simplex. Simple Inflammation of the Womb.	The organ unimpregnated. Pain permanent, circumscribed, throbbing: fever a cauma.
β Puerperarum. Puerperal Inflammation of the Womb.	The organ having lately suffered child-birth. Pain less acute, less circumscribed: flow of urine difficult: fever a synochus or typhus.

α E. Hysteritis simplex. Simple inflammation of the womb.

The first of these is produced by cold or any of the other ordinary causes of inflammation, and terminates in resolution, suppuration, scirrhus, or gangrene. The most ordinary termination is that of resolution: the next that of scirrhus, sometimes running into cancer: both which are far more common to women who have never been impregnated, than to those who have had families. The concomitant symptoms vary according to the part of the organ in which the inflammation is seated. If this be chiefly in the fundus, the greatest distress of pain, heat, and throbbing, will be above the pubes; if the posterior part be chiefly affected, the loins and rectum will principally sympathize, and there will be a troublesome tenesmus:

Distinctive symptoms.

Gen. VII. Spec. XVII. α E. Hysteritis simplex. Simple inflammation of the womb.

if the inflammation attack the anterior part, the bladder will participate in the ailment; the urine will flow with difficulty, but there will be a perpetual desire to pass water: while if the sides of the uterus or its ovaria be chiefly inflamed, the pain will dart down the interior of the thighs.

Treatment.

All the ordinary means already noticed for subduing inflammation, both general and local, should here be put into effect without loss of time, as venesection, aperients, emollient injections both into the rectum and uterus itself, and fomentations or epithems to the hypogastrium. The disease is sometimes cured by a metastasis, and sometimes by a sudden flow of the menses, with hemorrhage or genuine blood.

β E. Hysteritis puerperalis. Puerperal inflammation of the womb.

The SECOND VARIETY, in which the symptoms are alike, but less acute, is usually, though not always a result of suppressed lochia, or violence sustained during labour, particularly from the use of instruments. Bleeding is here to be avoided; and the inflammation to be attacked with gentle laxatives, diaphoretics, and, where there is much irritability, camphor and opiates; fomentations and injections being employed at the same time.

Singular sympathy of the spleen with the morbid uterus.

It is a singular but well ascertained fact, that the spleen, from some unknown cause, is peculiarly apt to sympathize with the action of the womb, and at times, to run into an equal degree of inflammation, suppuration, or even gangrene; and especially in females of a high nervous temperament. And so common is this fellowship of action, that most of the cases of diseased spleen related by Morgagni, are accompanied with an account of some mischief existing in the womb or its appendages. It is, however, to M. Gastellier of the Hospice de la Maternitè, at Paris, that we are chiefly indebted for a knowledge of this peculiar sympathy, and especially in the case of uterine inflammation after child-birth. "La rate," says he, "en a été *souvent* frappée, mais une fois entr' autres elle a été entierèment détruite, entierèment fondue: il n'en restoit

Illustrated from Gastellier:

aucune trace, si non un foyer de fluide sanieux, dans la région, et en place de cet organe."

Gen. VII. Spec. XVII. ϵ E. Hysteritis puerperalis. Puerperal inflammation of the womb.

This passage from M. Gastellier is quoted by Dr. Ley, in a case of a similar kind which lately occurred to himself in the Westminster Lying-in-Hospital, and is given in the Medical Transactions of the College*. In this case, the preceding labour seems to have been perfectly natural and without any difficulty whatever. On the third day afterwards the disease seems to have commenced, indicated by intense pain over the whole of the abdominal region, with a slight sense of fulness, but without any considerable degree of tension. The patient sunk suddenly seven or eight days afterwards, and at a time when she was supposed to be in a state of improvement. On examining the body, the peritoneum and intestines exhibited little morbid affection of any kind; and the disease was found limited to the uterus and spleen: the peritoneal covering of both was slightly inflamed, but the internal structure of both had undergone a very extensive destruction. The whole surface of the uterus, when stripped of its tunic, was found to assume a gangrenous appearance, was extremely irregular, of a dark, livid hue, and gave forth a highly offensive vapour. The texture of the spleen was so changed as to resemble an extremely soft piece of sponge, and its cells were filled with an intimate mixture of pus and grumous blood.

Confirmed by Dr. Ley.

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[*] Vol. v. Art. xx.

SPECIES XVIII.

EMPRESMA ORCHITIS.

Inflammation of the Testicles.

PAIN AND SWELLING OF THE TESTICLES; NAUSEA OR VOMITING; DEPRESSION OF SPIRITS; PULSE QUICK, SOMEWHAT LOW.

GEN. VII. SP. XVIII. Hernia humoralis what? INFLAMMATION of the testicle has generally been expressed by the absurd and unmeaning name of *hernia humoralis;* which, however, in its earliest use, applied to only one stage of the disease, namely the suppurative, and imported an abscess or collection of pus in any part of the scrotum; and in this sense the expression occurs in Heister and Dionis: being precisely synonymous with the empyocele of the Greeks. Empyocele what? I have revived the Greek term ORCHITIS, not only as being far more precise, but as accordant with the general termination of the specific names of the diseases appertaining to the present genus.

Progress of the disease. The inflammation seems commonly to commence in the tunica vaginalis, and to pass secondarily into the substance of the testis. Dr. Schwediauer contends that the testis never swells in the first instance, and that the disease always begins in the epididymis. Causes. The causes are irritation or external injuries. The most common irritation is venereal virus. Bleeding, laxatives, and cold lotions, with a suspensary bandage, form the curative process. Treatment. Yet we have already observed that, when all local applications have proved ineffectual, the inflammation has been removed by vomits, in consequence of the close sympathy between the testis and the stomach.

Gen. VII. Sp. XVIII.

Peculiar sympathy between the stomach and testis.

This was a frequent practice of Mr. John Hunter*, and especially when the inflammation was the result of a syphilitic taint. It was successfully employed for the same purpose, and is hence strongly recommended by Rhazes†, and is a common mode of treatment on the continent, particularly in Germany‡: after which opiates are often had recourse to, as well externally as internally. It may be worth remarking, that the affinity or play of action which thus prevails between the testis and the stomach, does not appear to be the common bond of union that is exhibited between the stomach, as the general centre of sympathy, and most other parts of the system; but a fellowship of a peculiar kind, and which, in fact, does not terminate in the stomach, but extends to the upper extremity of the alimentary tube, and exercises a very high degree of influence over the parotid glands, as is well known in E. PAROTITIS, and has been already noticed in discussing this disease. In treating of E. HYSTERITIS, I have had occasion to glance at the existence of a like sympathy between the uterus and the spleen: and the physiologist who has time for such pursuits, and judgment enough to guide him to a correct discrimination, would be engaged in no unthrifty employment if he were to follow up and arrange, in a regular classification, these specific and mysterious relationships which single organs hold with single organs, and which are subordinate to the general harmony of the entire machine.

Parallel of affinities between other organs.

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[*] On Venereal Diseases.

[†] Continent. Lib. XI.

[‡] Althof, Practische Bemerkungen, &c. Girtanner, Venerische Krankheiten, &c.

GENUS VIII.

OPHTHALMIA.

Ophthalmy. Inflammation of the Eye.

PAIN AND REDNESS OF THE EYE OR ITS APPENDAGES: INTOLERANCE OF LIGHT; FLOW OF TEARS OR OTHER DISCHARGE.

Gen. VIII. Origin and general import of ophthalmia.

How understood by different writers.

Ophthalmia, from the Greek term ὀφθαλμὸς, oculus, is obviously of very extensive import, and, from its radical signification, may be applied to any morbid affection of the eye, unless limited by common consent. Now, although a sort of common consent has been given, so as to restrain the term to inflammatory action, such consent has not been universally acceded to; and hence ophthalmia has been used in very different senses by different writers. Thus, Sauvages, Linnéus, and Sagar, employ it as expressive of any ache of the eye, without reference to pyrexy or inflammation. Amongst all these, therefore, it occurs under their class *dolores*, and runs parallel with cephalalgia or cephalæa, ache or pain in the head. By Vogel, Cullen, and Macbride, it is limited to inflammatory affections of the eye; the two former arranging it as a genus, and the latter as a species. By Dr. Parr and Dr. Young it is also arranged as a species, and limited to phlogotic action; the second denominating it ophthalmitis, consonantly with the common termination of names importing inflammatory diseases of a particular description of internal membranes, and organs.

Its meaning in the present work.

In the present system OPHTHALMIA assumes a middle rank; it is limited to inflammatory action accompanied with organic pain, but is arranged as a genus. It might possibly have been placed as a species under the preceding genus, EMPRESMA, in which case it should have been written, as Dr. Young has written it, *ophthalmitis:* but it has various characters peculiar to itself, as well in regard to its symptoms, as to the particular parts of the organ affected, which seem to entitle it to the rank of a distinct genus. And thus explained, its real meaning will be found in the generic definition; the symptoms of inflammation common to the order, and entering into the ordinal definition, being always understood as a part of the generic character.

GEN. VIII. Ophthalmia. Ophthalmy. Inflammation of the eye.

There is, perhaps, no disease in Dr. Cullen's First Lines that is treated of so slightly and unsatisfactorily as ophthalmy. He gives only one idiopathic species, into which he resolves all inflammatory affections of the eyes that are not symptomatic of other complaints; and he considers this merely as modified into two varieties, from the inflammation being seated in the membranes of the organ, or on the edge of the lid. When we compare this abbreviated view of the inflammatory diseases of the eye with Dr. Plenck's methodical arrangement of its ailments altogether, and behold the latter enumerating not less than one hundred and nineteen genera, comprising very nearly six hundred species, although a regard to our own ease may dispose us rather to take part with the abbreviating spirit of Dr. Cullen than the discursive genius of Dr. Plenck, still it is impossible for us not to perceive that the former has been too summary in his arrangement; and, if we follow up his arrangement into his therapia, too summary in his therapia also. It is true, indeed, that since Dr. Cullen's time, the maladies of this organ seem to have increased, and this too, in one at least, perhaps more than one, of its most virulent and fatal affections, as the contagious purulent ophthalmy; but then this addition has taken place, also, since the arrangement of Dr. Plenck, who would otherwise, no doubt, have found the means of extending his list by the invention of new genera and species, to

Disease unsatisfactorily and too cursorily treated of by Cullen.

Too diffusely by Plenck.

Diseases of the eye since the time of the above writers.

Gen. VIII. Ophthalmia. Ophthalmy. Inflammation of the eye.

nearly a hundred more maladies of the eyes; so as to have treated us with a catalogue of nearly seven hundred, instead of six hundred, distinct diseases of this single organ.

Proposed subdivision into species.

After no small degree of consideration, it appears to me that ophthalmia, or inflammation of the eyes, may embrace all the diseases that belong to it, as a genus, under the five species of inflammation of its coats generally; inflammation of the muscular fibres of the iris; inflammation of the internal surface of the eye-lids associating with that of the globe; inflammation of the tarsus or edge of the eye-lids; and the chronic inflammation which is often found as a sequel to most of these.

1. OPHTHALMIA TARAXIS.	LACHRYMOSE OPHTHALMY.
2. ——— IRIDIS.	INFLAMMATION OF THE IRIS.
3. ——— PURULENTA.	PURULENT OPHTHALMY.
4. ——— GLUTINOSA.	GLUTINOUS OPHTHALMY.
5. ——— CHRONICA.	LIPPITUDE. BLEAR-EYE.

SPECIES I.

OPHTHALMIA TARAXIS.

Lachrymose Ophthalmy.

INFLAMMATION SEATED, OR COMMENCING, IN THE TUNICS OF THE EYE-BALL: INCREASED SECRETION OF TEARS.

Gen. VIII. Spec. I. Explanation.

THIS is the common inflammation of the eyes produced by cold, dust, or any other external irritation, as excessive light, vivid colours, blows or wounds: and has been often called, and with great propriety, LACHRYMOSE OPHTHALMY, as the morbid secretion chiefly excited is

GEN. VIII.
SPEC. I.
Ophthalmia Taraxis.
Lachrymose Ophthalmy.

that of tears. By Paul of Ægina it was named TARAXIS, from ταράσσω "to disturb, confuse, tumultuate," in allusion either to the violent action that takes place, or the confusion of the objects presented. And as the Greek name has been very generally continued by medical writers, and especially those of the Continent, to our own day, I have employed it in the present system, to distinguish the species before us. It occurs under two varieties as follow:

α Mitis. Mild Lachrymose Ophthalmy.	The inflammation limited to the surface: the pain passable: the head not affected.
ϐ Acuta. Acute Lachrymose Ophthalmy.	The inflammation extending to the lower part of the eye-ball: and sometimes commencing there: the pain burning: the tears perpetual and acrid: with intolerable head-ache.

α O. Taraxis mitis.
Mild lachrymose ophthalmy.
Causes.

The FIRST VARIETY is a very frequent disease in most countries, but particularly in those exposed to sudden changes in the temperature of the atmosphere. Clouds of dust, in dry seasons, are another common cause; as is also an exposure to smoke, or other acrid fumes or exhalations. A strong incessant glare of light, or of vivid colours has also not unfrequently proved a source of affection; but perhaps less frequently so than an undue use of wine and ardent spirits.

Description.

The disease commences with the appearance of a net-work of red blood-vessels in the sclerotic tunic, and particularly at the angles of the eye; the eye-lids are often swollen and tender, the fine membrane that lines their interior is turgid with blood, and there is a feeling as if gritty particles had insinuated themselves under the lid, accompanied with great heat and a pricking pain. If the inflammation commence in one eye it will generally extend to, and sometimes alternate with the other; and during sleep a glutinous fluid is secreted which collects towards the angles, and sometimes so closely

Gen. VIII. Spec. I. α O. Taraxis mitis. Mild lachrymose ophthalmy. cements the eye-lids, that it is with difficulty they are opened in the morning.

Progress. Treatment. In ordinary cases, this milder modification of ophthalmy runs its course in four or five days, and ceases spontaneously, or is easily removed by local applications, and particularly astringent lotions, as cold water, or solutions of alum, zinc, or lead*; though, in irritable habits of a particular kind, relaxants and anodyne fomentations prove most successful. And even when the first are employed, it is always best to wash off the adhesive fluid, that glues the eye-lids together during the night, with a little warm water in the morning, before a free use of them.

β O. Taraxis acuta. Acute lachrymose ophthalmy. Description. In the SECOND VARIETY, constituting the chemosis of Plenck, and produced from the same causes as the preceding, the symptoms from the first assume great violence; the inflammation passes rapidly from one part of the ball to another; a keen darting pain penetrates frequently to the bottom of the socket, accompanied with a burning heat, and intolerable head-ache; the temples often throb, and the pulse is quick.

Treatment. The most active measures are here necessary from the earliest commencement; for, from the violence of the inflammation, ulceration may take place internally or externally, and the pupil be irretrievably lost. Copious bleedings by leeches or cupping-glasses, are usually recommended from the temples; but large and repeated general bleedings carried on to syncope will be found far more successful; and if the blood be taken from the temporal artery, the success will be still more certain. Brisk purgatives should at the same time be employed, and blisters applied to the temples, or behind the ears. The room should be kept moderately dark, but cool and airy; and astringent lotions, chilled by ice or frigorific mixtures, be constantly applied to the forehead, temples, and eye-lids, by folds of linen successively wetted for the purpose.

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* Janin, Beobachtungen über das auge, &c. Berl. 1776.

Gen. VIII. Spec. I. ϵ O. Taraxis acuta. Acute lachrymose ophthalmy.

Free vomiting often highly beneficial.

Confirmed by earlier practice.

Illustrated from a case by Dobson.

I have known, however, the vomiting plan, which I shall have to notice under the third species, employed here also with very great advantage, and in some cases where every other plan has failed; and I find the same practice had recourse to with like success in a very strongly marked case, published by Dr. Robert Dobson of Kirkham; who tells us that at that time, 1773, there was a rumour of the utility of emetics in some inveterate cases of this kind, notwithstanding the general prejudice against them, from their being supposed to add to the congestion of the head. The patient, whose history he describes, was a young woman, aged twenty-two, of a delicate habit. The attack was sudden, and produced a total inability of sight in the right eye. The tunica albuginea, and indeed the whole globe of the eye were preternaturally enlarged, and the former in a considerable measure covered with deeply-inflamed red vessels; the cornea being greatly distended, and the crystalline lens apparently protruded, by an accumulation of fluid, through the pupil so as to be in contact with the inner surface of the cornea itself, possessing an irregular and unequal form. The eye-lids were very much swollen and glued together; the admission of light and air was insupportable; and followed by a copious discharge of acrid tears; and the whole was accompanied with excruciating and incessant pain, entirely preventing sleep, and sometimes so intolerable as to induce fainting. The left eye was similarly affected, but in a less degree. Copious and repeated bleeding from the temples, blisters, purgatives, shaving the head and cold applications to it, and all other means that could be thought of, had been tried, but to no purpose. As a doubtful and desperate remedy, a tartar emetic mixture was prescribed of which the patient was to take a large spoonful every hour till it vomited or purged her. The second dose both vomited and purged; after this at bedtime, she took a grain and a half of Thebaic extract with two grains of ipecacuan. She passed a quiet and composed night, and enjoyed more sleep, and far more

Gen. VIII. Spec. I. γ O. Taraxis acuta. Acute lachrymose ophthalmy.

comfortably than she had done during all her illness. The tartar emetic mixture was continued the next day in smaller quantities, and in a few days more she recovered her former health and strength*.

Where a symptom of some other complaint the latter to be particularly attended to.

Where the inflammation is a mere symptom or concomitant of some other disease, it can only be removed by a cure of the original malady. And this is not unfrequently the case; for it is often dependent on a strumous, or syphilitic habit or a suppressed blenorrhœa: on a disordered state of the stomach, liver or some other digestive organ, and especially in hard drinkers; on an abuse of mercury as a medicine; and on various affections of the teeth.

Treatment when idiopathic.

If the inflammation be produced by an influx of sand or gravel, or spiculæ of flint or iron driven into the external tunic, every such foreign substance must be carefully removed with as much speed as possible: but it will be generally found that the pointed and pricking pain caused by the incursive substance will remain for some time after its removal, and induce in the patient's mind a strong belief that it is still fixt in the membrane. We have various examples of an extraction of spiculæ of iron forcibly driven into the eye, by the application of a magnet†.

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* Edin. Med. Com. III. p. 411.

† Morgagni, De Sed. et Caus. Morb. Ep. XIII. 22.
Weber, Würkung des künstlichen Magnets in einem Augenfeler, p. 18. Hanov. 1767, 8vo. Phil. Trans. p. 164.

SPECIES II.

OPHTHALMIA IRIDIS.

Inflammation of the Iris.

INFLAMMATION COMMENCING IN THE IRIS; COLOUR CHANGED TO GREEN OR REDDISH; FIBRES LESS MOVEABLE; AND SHOOTING DENTIFORM PROCESSES INTO THE PUPIL; PUPIL IRREGULARLY CONTRACTED AND GREYISH.

Gen. VIII. Spec. II. The Iritis of Schmidt:

DR. SCHMIDT of Vienna, to whom we are chiefly indebted for an accurate description of this species, has denominated it *Iritis**; and under this name it has of late years been described by many practical surgeons in our own country. The termination, however, is unclassical, and if the derivative be retained, it should unquestionably be iri*di*tis, instead of iritis; but ophthalmia *iridis* is better, as the disease is very clearly a species of a connexive genus of diseases rather than a distinct genus itself.

but the name not classical.

Morbid change of colour accounted for.

The exact change of colour which the inflamed iris assumes, first in its less, and then in its greater circle, depends upon the peculiar colour it possessed when in health. If this were greyish or blue, the morbid hue will be green; if brown or black, it will be reddish.

Cloudy appearance accounted for.

The greyish or cloudy appearance of the pupil is produced by the secretion of coagulable lymph which spreads over it in a fine flake like a cobweb. If the inflammation do not yield to the curative treatment, a yellowish-red tubercle forms some part of the surface of the iris,

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* Ueber Nachstaar, und Iritis Nachstaar operationen, Wien. 1801.

Gen. VIII. Spec. II. Ophthalmia iridis. Inflammation of the iris.

Progress of the inflammation to suppuration. And loss of vision.

commonly where the greater and less circles of the membrane meet; it enlarges, projects still forwarder, and is distinctly seen to be an abscess which at length bursts and discharges its contents into the anterior chamber. The inflammation now diminishes, the pus and blood, if any be thrown forth, are absorbed; and the disease subsides, but with a total loss of vision; for the iris remains permanently expanded with an utter inability of motion, and the pupil is closed or rather filled up by the greyish or ash-coloured web or membrane already noticed.

Usual cause.

The most frequent cause of this distressing affection is the operation for the cataract; in which an irritation is often excited either by endeavouring to press out the lens through too small a wound in the cornea; by suffering some pieces of the lens to remain in the posterior chamber; or from too frequent an exposure of the internal surface to the air by unnecessarily raising the flaps of the cornea.

Occasional causes.

Like several other species of ophthalmia, this also occasionally shows itself during the existence of a syphilitic taint in the system. And where a patient is labouring under an arthritic diathesis, and is accidentally affected by a common ophthalmy, this species is apt to be engrafted upon it.

Medical treatment.

Local.

The medical treatment is both local and general. The first should consist in freely emptying the vessels by venesection, leeches, and active purgatives: blisters are then to be applied successively to the temples, behind the ears, and on the nape of the neck. Cold local applications are quite useless; and the only admissible collyrium is a fomentation of the eye with water made as hot as the patient can bear it, which will often mitigate the violent pain; the eye being carefully wiped dry after using the application.

General.

The general treatment of the disease consists in the introduction of mercury into the system. This is particularly insisted upon by Mr. Travers, who has written a valuable article upon the subject. Whether it be a

Gen. VIII. Spec. II. Ophthalmia iridis.

primary affection, or connected with other diseases, even with syphilis, or induced by the action of mercurial preparations, he estimates this as almost a specific remedy[*].

Inflammation of the iris.

Mr. Travers distinguishes also inflammation in the iris from that in the cornea, by regarding the latter as suppurative, and leading to an abscess, and the former is adhesive alone. And he tells us that inflammation of the cornea so strictly maintains this character, that if it spread to the iris, and in this case become merely secondary, it still preserves its adhesive power.

Inflammation of the iris how distinguished from that of the cornea.

This species is also sometimes a concomitant of cutaneous eruptions, decidedly not syphilitic; and especially of those produced by a very extensive use of mercury; constituting what has been denominated by some writers erythema *mercuriale*, and hydrargyria, as we shall take occasion to notice under syphilis.

Sometimes a concomitant or sequel of other affections.

In the syphilitic or arthritic affection however, a particular attention must be paid to the primary disease, since otherwise no local remedies can be of any avail.

SPECIES III.

OPHTHALMIA PURULENTA.

Purulent Ophthalmy.

THE INTERNAL SURFACE OF THE PALPEBRÆ ASSOCIATING IN THE INFLAMMATION OF THE EYE-BALL: COPIOUS SECRETION OF A PURULENT FLUID.

Gen. VIII. Spec. III.

Of this species there are four varieties that are peculiarly worthy of notice, though one or two of them are of more importance than the rest:

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[*] Surgical Essays, &c. I. passim.

Gen. VIII.
Spec. III.

α Epidemica Egyptian ophthalmy.	The disease epidemic; inflammation rapid and destructive, producing irritating granulations on the inner surface of the palpebræ: head-ache intolerable; often succeeded by delirium; at times remittent.
β Metastatica. Metastatic ophthalmy.	Apparently produced by a sudden suppression of catarrhal, blennorrhoic, or other morbid discharge; the secretion often greenish.
γ Intermittens. Intermittent ophthalmy.	Marked by irregular intermissions nearly allied to the epidemic variety. Probably produced by a peculiar miasm generated in marsh-lands.
δ Infantum. Purulent ophthalmy of infants.	Appearing suddenly and without any ostensible cause in new-born infants: the palpebræ florid, and peculiarly tumid.

α O. purulenta epidemica.
Egyptian ophthalmy.

Nature of the disease and mode of treatment of recent discovery.

The FIRST, OR EGYPTIAN VARIETY, is that concerning which so much has of late years been written by French and English surgeons and physicians, and which proved so extremely destructive to the armies of both nations in their respective expeditions to the banks of the Nile; the real nature, however, and cure of which have only been very recently discovered in our own country, to the great benefit of the numerous blind pensioners of Chelsea and Greenwich hospitals.

How accounted for at first.

How at present.

This disease was at first ascribed to the minute and glassy spiculæ of the sands of the Egyptian plains. But it has since been sufficiently traced, either to a peculiar miasm generated in marsh-lands, or to sleeping on damp or swampy ground, with insufficient covering, and surrounded by a moist atmosphere. And as these causes

Gen. VIII. Spec. III. α O. purulenta epidemica. Egyptian ophthalmy.

exist in other parts of the world than Egypt, the disease has been since detected in other parts as well.

Perhaps a singular miasm the real cause.

A peculiar miasm, however, formed in hot and swampy soils, is perhaps the real cause; for it is otherwise almost impossible to account for no existence or description of the disease in earlier times: and however difficult it may be to conceive the origin of such a miasm in one period of the world rather than another, this is a difficulty that extends equally to all infections, as well as to various other maladies. The cause, be it the one or the other, necessarily renders it epidemic; and the pus, as in one or two of the succeeding varieties, secreted apparently from the sebaceous, or rather the *mucous* follicles of the tunica conjunctiva (for M. Bichat is probably right in regarding the conjunctiva as a mucous membrane) is impregnated with a specific contagion; and hence the disease is propagated with great rapidity between those who come in contact with each other by sleeping together, or using the same towels. I have known it caught by a surgeon's assistant merely in consequence of syringing the eyes of a patient, a part of the discharge having, from the force of the syringing, spurted into one of his own eyes, which was for some days in a state of danger.

Epidemic.

Impregnated with specific contagion.

Received easily.

Symptoms and progress.

The general symptoms and progress of the disease are those already noticed in the definition. From the violence of the morbid action, the eye-lids soon become excessively tense and edematous, sometimes inseparably closed, with the edges drawn inwards, and sometimes gaping with the edges broad, turgid and everted. The secretion of pus and tears is prodigious; and the pus is discharged thus freely even when there is no ulceration. But an ulceration often takes place, and sometimes during the first night of the attack. It commences usually in the cornea, which, from the onset of the disease, looks more or less muddy, or is studded with white spots. The ulcerative progress is sometimes checked before it spreads over the whole disk of the pupil, and, in this case, the sight is partially preserved. But, very fre-

GEN. VIII. SPEC. III. α O. purulenta epidemica. Egyptian ophthalmy.

quently, it makes a rapid and irresistible advance over the entire cornea, lays open the iris, and works its way to the membranes, and even to the cellular substance below: in consequence of which the aqueous, and a part of the vitreous humour escape, the iris protrudes, and more or less adheres to the ruptured cornea, and the eye loses its figure as well as its power of vision. The pain, through the whole progress, is intolerable: in the eye itself there is a sense of scalding or burning, and an agony in the head that drives the patient mad.

Effects sometimes less violent.

In some cases the symptoms are less violent, and gradually subside without ulceration, in three or four days; and especially where the disease has been actively opposed by the process we shall have to notice presently. But innumerable granulations have, by this time, often formed upon the conjunctiva of one or both eye-lids, and a destructive irritation is hereby still kept up, which becomes a secondary source of blindness.

Treatment adopted at first.

The earliest mode of treatment pursued by the French, as we learn from the account of Dr. Antonio Savaresi, consisted in little more than the general treatment of the common acute ophthalmy; as local bleeding, drawn, however, from the jugular vein or temporal artery, blisters, saline purgatives, anodyne lotions, and a low diet. The bleedings do not appear to have been very copious. And yet this writer tells us that by this process alone he was so fortunate that out of a thousand, or thereabouts, who were confined in the French military hospitals in Egypt under his care, not more than two lost their sight completely, though some others suffered the loss of one eye.

Not generally successful,

though carried to its utmost extent.

In the hands of our own army-practitioners the plan of treatment thus limited, completely failed of success: and the bleeding, which was almost solely depended upon, was carried, from the first day of the attack, and repeated for several days afterwards to as great an extent, not only as fainting, but as life itself would allow. The first accounts we had of this practice seemed to

Gen. VIII. Spec. III. α O. purulenta epidemica. Egyptian ophthalmy.

show that it was in the highest degree successful*: but later experience has not justified the representation, and the extensive lists of blind pensioners at this moment supported by the Chelsea and Greenwich hospitals, are a sufficient proof that the success of the evacuating plan was considerably exaggerated.

Improvement by Saunders: who discovered that the inflammation consists of two stages.

The late Mr. Saunders was, in consequence, induced to turn his attention upon its full stretch to this most acute and maddening disease: and he was the first to discover that the blindness which is so apt to follow, even after the first attack of virulent inflammation has subsided, proceeds from the friction upon the transparent cornea, of innumerable irritating granulations thrown forth from the surface of the tunica conjunctiva that lines the interior of the palpebræ, and which become a new source of inflammation, less violent indeed, but as fatal in its effects; and the disease has hence been very correctly divided into two stages, that of primary and that of secondary or granulating inflammation. Mr. Saunders endeavoured to cut the disease short in its first stage by exciting nausea, and maintaining it for a considerable period of time so as to lower the living power, and hereby take off the inflammatory action. And where the disease had proceeded to the granulating stage, he removed the minute caruncles from the tunica conjunctiva by cutting them off with a pair of scissors, and afterwards applied a solution of nitrate of silver to prevent their sprouting again. Sir William Adams appears very essentially to have improved upon both plans. Instead of the nauseating process employed in the first stage, he boldly prescribes active and powerful vomiting continued for eight or ten hours by giving two grains of tartar emetic at first, and continuing one grain every half hour afterwards through the whole of this period; by which violence a change of action, or new but more manageable excitement seems to be produced in the eye, and the disease is

Management of the first stage: of the second stage.

In both cases further improved by Adams.

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* Account of the Ophthalmia which has appeared in England since the return of the British army. By J. Veitch, M. D.

Gen. VIII. Spec. III. α O. purulenta epidemica. Egyptian ophthalmy.

stopped in the course of ten or twelve hours from its onset. And where the second or granulating stage has commenced, he slices away by a knife the diseased surface of the conjunctiva, instead of the granulating points alone; by which the morbid action is destroyed not only with less pain, but far more radically and effectually; and he afterwards employs a solution of alum, instead of a solution of nitrate of silver, as the latter is hereby rendered unnecessary; not to mention that the agony it excites is almost intolerable, and that a new inflammation has followed, in some instances almost as dangerous as the original inflammation itself. Emetics, indeed, have long been occasionally made use of as a means of relieving inflammation in the eyes; but not in the particular kind before us, nor perhaps at any time of inflammation at present with the precise object in view, proposed by Sir William Adams. Stoll, for instance, employed them successfully in periodic ophthalmies *; and Dobson, as already observed, in ophthalmies of a like chronic kind, accompanied with nervous debility; the bark being interposed between their repetition †. The nearest approach, however, to this practice which I have met with on medical records is Dr. Dobson's case, already noticed under acute taraxis.

Emetics long known to be useful in ophthalmy; and employed, but upon a different principle.

β O. purulenta metastatica. Metastatic ophthalmy. How produced.

In the SECOND OR METASTATIC VARIETY, the inflammation of the eye is produced by a transfer of action or secretion from some other organ; as on a sudden suppression of the discharge that takes place in the nostrils during a catarrh, or in the urethra from venereal infection.

Resemblance between mucous membranes. Sympathy of action.

The mucous membrane that lines the ball of the eye, and is a duplicature of the tunica conjunctiva, has a near resemblance to those which line the urethra and the nostrils, and all are easily excited to a very copious secretion of purulent matter. This in effect is the immediate cause of the purulent ophthalmy in each of its varieties.

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* Nat. Med. Part II. p. 102.

† Med. Comm. Edinb. Vol. III. p. 444.

Gen. VIII. Spec. III. ϵ O. purulenta metastatica. Metastatic ophthalmy.

And it is not therefore very extraordinary, as we are perpetually meeting with examples of a transfer of action in almost every other part of the body, that the mucous membrane of the eyes should occasionally become the seat of a metastasis or transferred action from organs that so nearly partake of its nature: and it is still less wonderful that such an effect should occur where the whole system is impregnated with syphilitic virus; a subject of inquiry, however, that belongs rather to the genus syphilis, than to the present place.

Symptoms and mode of treatment.

The symptoms, under such a translation, are those of the Egyptian ophthalmy; the disease is often as violent and dangerous, and requires to be treated in the same manner. I have noticed this variety upon the concurrent testimony of St. Yves, Scarpa, Mr. Bell, and Dr. Edmonstone, to which may be added the authority of Dr. Plenck, who has two distinct varieties under the names of ophthalmia *catarrhalis* and o. *gonorrhoica*. It should at the same time be observed that some very respectable practitioners still entertain doubts upon the existence of a variety produced by any such means; and are inclined to ascribe the disease, whenever it occurs, to a conveyance of the virus of the organ primarily affected to the eye, by means of the finger, or of a handkerchief. These doubts, however, appear to be founded rather on hypothesis, and an indisposition to believe that the conjunctive tunic ever secretes mucus, or that there is any such thing as a consent of parts between the respective membranes before us, than on any actual disproof. The variety seems to be supported by incontrovertible experience: and M. Scarpa has pointed out a striking difference between the transfer of gonorrhœa to the eye by a consent of parts, and the infection of this organ by an accidental communication of its virus; the disease being in the latter case always far milder than in the former. I was lately consulted by Mr. G. of Great Russell Street, who had been long labouring under an ophthalmy that had assumed a chronic and less violent character, and which appeared to be very much of the

The existence of this variety doubted by some practitioners:

but without sufficient reason.

Distinction of Scarpa between the symptoms of metastatic and accidental ophthalmy from venereal virus.

The variety confirmed and illustrated.

Gen. VIII. Spec. III. β O. purulenta metastatica. Metastatic ophthalmy.

present variety. His former life had been irregular: and he had twice before had a clap suddenly cease upon a severe inflammation of the eye. I had no reason to suppose that the present inflammation was the result of such a transfer: but as he had been for some weeks attended by a surgeon of considerable eminence, who had already exhausted, although in vain, nearly the entire treasury of medical resources, I could not avoid observing that as there existed so close a sympathy between the mucous membrane of the eye and that of the urethra, probably the most speedy and effectual means of carrying off the present inflammation would be some accidental irritation of the urethra. No steps were taken to effect this; and I was, therefore, the more astonished at finding about three days afterwards that such an irritation had accidentally occurred, accompanied with a considerable flow of purulent fluid from the glans: and I was peculiarly pleased to find that from this time the ophthalmy began to diminish, and that a complete cure was effected in about a week.

γ O. purulenta intermittens. Intermitting ophthalmy. Cause uncertain. Ophthalmia periodica of Plenck. Medical treatment.

In the THIRD VARIETY, or that MARKED BY REGULAR INTERMISSIONS, the inflammatory symptoms are less violent than in either of the preceding. Its cause is uncertain: and it has been suspected by some writers to originate in a particular kind of marsh-miasm operating upon a particular diathesis; and by others to be connected with a syphilitic taint. It is the ophthalmia *periodica* of Plenck. The cure is to be attempted during the interval; in which a free exhibition of bark has been usually had recourse to, though where a vitiated habit is suspected, sarsaparilla, or the inner bark of the elm in decoction, or the solution of arsenic might be tried with a better chance of success.

δ O. purulenta infantum. Purulent ophthalmy of infants.

The FOURTH VARIETY is called by Mr. Ware the PURULENT OPHTHALMY OF NEW-BORN CHILDREN*, and is at

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* Remarks on the Ophthalmy, Plorophthalmy, and purulent Eyes of new-born Infants. Edit. Tec. 1814.

GEN. VIII. SPEC. III. δ O. purulenta infantum. Purulent ophthalmy of infants. Causes. Description.

times as rapid and alarming as the Egyptian ophthalmy. Its common cause is cold; though as it occurs far more generally in particular seasons of some years than of others, it is highly probable that a peculiar temperament of the atmosphere may form a predisposing cause. It usually makes its appearance within the first week or fortnight from birth. The eye-lids look red, and swell rapidly to such a size that it is difficult to separate them without pain. A discharge of a yellow purulent fluid soon succeeds, which, upon opening the lids, will be found to cover the entire globe of the eye. And from the forcible pressure of lid against lid, both are greatly thickened, and not unfrequently everted. The disease is usually unconnected with any other disorder; though Mr. Ware informs us that it is occasionally accompanied with eruptions on the head and other parts of the body; and sometimes with signs of a scrophulous constitution.

Illustrated.

At the moment of writing this, two infants of highly respectable families, and who have had every possible attention paid to them, living not many doors from each other, are just recovering from an attack, which seized them about a fortnight after birth. The discharge of pus or purulent matter was prodigious from each; both the eyes of both infants were in great danger: three of the four eyes were ulcerated on the cornea on the third or fourth day, and in one of the eyes the ulceration spread so completely over the pupil, as entirely and irrecoverably to destroy the sight. Much of the best medical and chirurgical advice that this metropolis can afford, including that of ophthalmic surgeons, was had recourse to in either instance. The author was one of those consulted in the one case, and was privy to the proceedings in the other.

Treatment.

Aqua camphorata of Bates,

I cannot say that either in these or in any other instance that has fallen within my own range of practice, I have seen all the benefit from the use of Bates's powerful, but stimulant astringent, known by the name of aqua camphorata, which Mr. Ware ascribes to it.

Gen. VIII. Spec. III. ꞇ O. purulenta infantum. Purulent ophthalmy of infants. often inconvenient and mischievous.

I have known it, at times, check the discharge, but do almost as much mischief from the pain it excites, and the irritation produced by very long fits of restlessness and crying, which is sure to follow. In consequence of which, moreover, neither the mother nor the nurse can summon fortitude to use it half so often or half so effectually as they ought: and even on this account alone, I have sometimes been compelled to relinquish it. Yet, even where it has had a fair trial, I have not generally found it successful.

In most of the cases, however, related by Mr. Ware, the inflammation was less violent than in those just adverted to, and had continued for some weeks, and assumed a chronic character: and under such circumstances, this pungent application may certainly be had recourse to with more propriety, and a fair expectation of benefit.

Solution of alum preferable in conjunction with other means.

The plan that has proved most effectual, in my own course of observation is, to syringe the eyes thoroughly, so that the whole of the purulent discharge may be washed out, with a solution of alum in water, in the proportion of not less than a grain to an ounce: to continue this syringing three times a-day, to keep the bowels open, scarify the gorged vessels of the conjunctiva where it can be done, apply leeches to the temples and surround the forehead and temples lightly and loosely with folded linen, wetted with a lotion of an ounce of the liquor ammoniæ acetatis mixed with seven ounces of water, and kept cold in a bucket of ice. The child, in order to receive the full benefit of the solution of alum, should have its head laid flat between the knees of the operator, with the face uppermost: the lids should be separated from each other by the fingers, or if necessary, as it almost always is, by the assistance of a blunt silver spatula, or some other blunt instrument, and the point of the syringe loaded with the astringent lotions should then be introduced between them, and convey its contents all around; the

Aluminous solution, how to be applied.

Gen. VIII. Spec. III. ϑ O. purulenta infantum. Purulent ophthalmy of infants.

syringing being repeated till the whole of the collected matter is washed away. The pain produced by the use of this solution is trifling, and the child ceases to cry almost as soon as the operation is over.

Where an ulcer is detected, a solution of nitrate of silver.

If, when the inflammation begins to subside, an ulcer is detected on any part of the cornea, and especially if it be over the pupil, a solution of nitrate of silver, in the proportion of a grain to an ounce of water, should be dropped into the eye night and morning after the syringing is over, and the eye be kept open for about half a minute, so that the solution may not be wiped away suddenly by the closing of the lids, but may fairly lie upon the ulcer and float over it for this period of time. Extract of bark should also be given dissolved in a small quantity of water, to as great an extent as the infant can be made to swallow it; and if looseness be produced, it should be checked by a drop or half a drop of laudanum in each draught. Prussiate of potash is also a very good astringent for contracting the area of the ulcer, and expediting the healing process; and may be used instead of the solution of the nitrate of silver in the form of an ointment, by means of the unguentum cetacei. By a careful perseverance in this process I have not only seen ulcerations on the cornea heal speedily, but in one or two instances, without leaving any cicatrix to impede the vision, even where the ulceration has been seated over the pupil.

How to be applied.

Extract of bark with laudanum if necessary.

Prussiate of potash in the form of an ointment.

SPECIES IV.

OPHTHALMIA GLUTINOSA.

Glutinous Ophthalmy.

THE INFLAMMATION CHIEFLY SEATED ON THE TARSUS, OR EDGES OF THE EYE-LIDS; ITS SEBACEOUS GLANDS SECRETING A VISCOUS AND ACRID FLUID THAT GLUES AND ULCERATES THE EDGES, AND IRRITATES THE EYE.

GEN. VIII. SPEC. IV. The psorophthalmia of Plenck and Ware. Description.

THIS in the psorophthalmia of Plenck and Mr. Ware; and consists in an inflamed state of the small sebaceous glands, whose ducts arranged in a row on the edge of each eye-lid, pour fourth a viscid matter that incrusts and hardens; and, during sleep, when the lids have been for some time in contact, glues them together so firmly, that they cannot be separated without many a painful effort. This matter, instead of being mild and lubricant, as in health, is now not only viscid but acrimonious and erosive; whence the eye is irritated, and the edges of the lids ulcerated; and the complaint is apt to become chronic, and will sometimes last for years, or even for life.

Causes.

The disease is not unfrequently produced by small-pox and measles; occasionally by a taraxis or common lachrymose ophthalmy from cold or any other causes, and in a few instances, though rarely, from a sty. Sometimes it appears to be the result of a scrophulous or venereal taint.

Treatment.

It is best attacked, and perhaps only to be cured by such local stimulants as may excite a new action or inflammation that may be more manageable. The practice of

Gen. VIII.
Spec. IV.
Ophthalmia glutinosa.
Glutinous ophthalmy.

M. St. Yves was here very bold; he touched the ulcers on the edge of the eye-lid with lapis infernalis, and thus cauterized the morbid surface. The unguentum hydrargyris nitratis, or the older form entitled unguentum hydrargyris nitrati, has of late been used with equal success, and with far less danger of injuring the ball of the eye; and if the inflammation have spread from the tarsus to the ball itself, this also may be illined with the same application. The best way of using which is, not that of a pencil-brush, but of letting a drop of it fall into the eye, melted for the purpose in a small silver spoon held over a candle. Or a drop of spirits, as vinum opii, ether, or Riga balsam may be allowed to fall into the eye in the same manner, and be repeated daily.

SPECIES V.

OPHTHALMIA LIPPITUDO.

Lippitude.

EYE WEAK AND WEEPING, WITH SLIGHT BUT CHRONIC INFLAMMATION; TARSUS THICKENED, SOMETIMES EVERTED, WITH A PERMANENT REDNESS ON ITS EDGE.

Gen. VIII.
Spec. V.

This species is usually a relic or sequel of some one of the preceding, in consequence of ill-treatment or neglect; and may be contemplated under two varieties:

α Simplex. Blear-eye.	The edge of the tarsus red, thickened, and highly irritable, but without eversion.

GEN. VIII. SPEC. V. Ophthalmia lippitudo. Lippitude.

β Ectropium. Everted eye-lid. The upper or lower tarsus everted, and the conjunctiva exposed, and turgid, with red vessels.

General remarks. The blood-vessels visible in that part of the conjunctiva which covers the inside of the eye-lids, are far more numerous than those observable in that part of it which covers the globe of the eye. And hence the reason that in various species of ophthalmy the interior of the eye-lid is peculiarly apt to become turgid, and very highly inflamed; and, from turgescence, thickens at its edges, and is often so considerably everted as to expose a very large portion of the conjunctiva. And if these effects of inflammation be not duly attended to, both the thickening and eversion are apt to remain and become permanent; nor is this all, for the exquisitely tender membrane of the eye-lid, constantly exposed to irritation from cold, sharp winds, dust, a strong light, and excoriating tears, increases in tenderness, is never free from some degree of inflammation, and at at length becomes highly vascular, florid, and caruncalate, and exhibits a very hideous deformity; the inverted eye-lid sometimes adhering and being cemented to the cheek by abrasion and the inosculation of new vessels.

Origin of lippitude.

α O. Lippitudo simplex. Blear-eye. Treatment. Scarification. The disease, under both varieties, is the result of debility. In the commencement of the simple BLEAR-EYE or vascular turgescence, the vessels should first be scarified with a lancet so as to be disgorged of the blood with which they are loaded; and it will be sometimes expedient to repeat the scarification several times, for the operation itself produces a new and more healthy action, and gives a disposition to contractility. The edge and interior of the thickened tarsus should then be attacked with gentle stimulants and astringents; as cold or ice-water, a solution of alum, zinc, lead, or camphor; illinations with the best brandy, vinum opii, or the nitric oxyde of mercury, in the form of the college ointment, or any of the other stimulants enumerated

Stimulants and astringents.

Gen. VIII. Spec. V. α O. Lippitudo simplex. Blear-eye. Blisters often ineffectual. Spurge-flax applied to the temple, more useful.

under the last species. Repeated blisters to the temples have also been very generally recommended; but I have frequently found them entirely ineffectual. Where additional secretion from a neighbouring organ is desirable, it may be obtained more successfully by the use of the thymalæa *Monspeliaca*, or spurge-flax, the daphne *Cnidium* of Linnéus. Small circular pieces of its bark, soaked for about an hour in vinegar, may be applied to the temple of the affected side, and renewed every ten or twelve hours. It excites a serous discharge, and consequently produces increased action without blistering or irritation.

β O. Lippitudo Ectropium. Everted eye-lid. Treatment, by Scarpa:

The SECOND VARIETY, OR EVERTED EYE-LID, is only to be cured by a surgical operation. Professor Scarpa was in the habit of destroying the conjunctiva at the edge of the tarsus with caustic; and, where the disease had made a greater progress, of extirpating the whole fungus close to the external muscular substance of the eye-lid, with the curved scissors: and Mr. Ware* pursued the practice in many cases with success. But where the eversion is considerable and the tarsus much elongated, a simple excision of the prurient growth is rarely sufficient to effect a radical cure; and M. Scarpa himself, has admitted as much by regarding such cases as almost incurable. The ingenious plan proposed by Sir William Adams, seems, however, to have triumphed over even this difficulty, and to have succeeded in some of the worst and most obstinate cases. It consists, first, in removing the whole of the fungous growth, by a small curved bistoury, next, in stripping away a piece of the edge of the tarsus in the form of the letter V; afterwards in separating the eye-lid from the cheek whenever it adheres to it; and, finally, in supporting the lid, now raised into its proper place, and confining the edges of the cut eye-lid, brought in a state of juxta-position, by a proper bandage†. The divided edges heal by the

by Ware:

by Adams:

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* Remarks on the Ophthalmy, &c. p. 40.

† Practical Observations on Ectropium, &c. Chap. I.

GEN. VIII. SPEC. V. β O. Lippitudo Ectropium.

first intention; and the cure is often completed in a fortnight, with a restoration of the eye-lid to its healthy form.

Everted eye-lid. Entropium.

An inversion or entropium of the organ is sometimes produced from a contraction of its internal membrane in consequence of a cicatrix, or from other causes*. The hairs of the eye-lashes prove a great source of irritation: but the disease may be removed by some of the means just described.

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* Plattner, De Vulneribus superciliis illatis. Opusc. Tom. II.

GENUS IX.

CATARRHUS.

Catarrh.

INFLAMMATION OF THE MUCOUS MEMBRANE OF THE FAUCES, OFTEN EXTENDING TO THE BRONCHIA, AND FRONTAL SINUSES; INFARCTION OF THE NOSTRILS; SNEEZING; AND, FOR THE MOST PART, A MUCOUS EXPECTORATION, OR DISCHARGE FROM THE NOSE.

GEN. IX. Origin of the generic term.

CATARRH is a Greek compound, and imports "defluxion," from *κατα*, denoting, as stated in the table of significations to the affixes and suffixes of medical terms in the Nosology, "augmented action," and *ῥέω*, "to flow." Catarrhus, however, like ophthalmia, has been used in various senses and latitudes by different authors. Schneider and Hoffman show a disposition to extend it to inflammation of the mucous glands in general; and Parr, enticed by such an example, has made it a genus for including not only what is commonly understood by catarrh, but the cough of old age, (which he admits is without pyrexy), croup, dysentery, phthisis, cystirrhœa, leucorrhœa, gonorrhœa, and one or two others. This is the widest acceptation of the word. The narrowest is that of the old pathologists, who thus distinguished between three separate terms which are now regarded by many writers as synonymous:

Different senses applied to it.

> Si fluit ad pectus, dicatur rheuma CATARRHUS;
> Ad fauces, BRONCHUS; ad nares, esto CORYZA.

How distinguished by the Greeks,

This couplet is, perhaps, founded upon Galen's account of these affections; but it does not follow up the Greek

Gen. IX. Catarrhus. Catarrh.

distinction into all its ramifications; for the Greek physicians, as Galen himself tells us, had also a further supply of names for the defluxion when it fixed itself chiefly in other parts of the neighbourhood; as ACINUS, when the uvula was the seat of affection; ANTIADÆ, when the tonsils; and PARISTHMIA, when the attack was common to the fauces. For all these Celsus employs the Latin term GRAVEDO, between which, however, and CORYZA he observes that there is a manifest difference. It is this difference which I have endeavoured to support in the present system; in which coryza, treated of under our second class, as an affection of the vocal avenues, is made to import nasal defluxion without pyrexy. Celsus takes no notice of the term catarrh; for in his day catarrh was changed by the later Greek writers into CATASTAGMUS.

How denominated by Celsus; his subdivisions.

Sauvages has only deviated from the rule contained in the above Latin couplet by omitting bronchus and employing catarrhus in its stead, and rheuma in the stead of catarrhus; so that with him RHEUMA imports a cold, or febrile defluxion of the chest; CATARRHUS, the same affection of the fauces, and adjoining organs; and CORYZA, the same malady of the head or nostrils.

Distinctions of Sauvages:

Cullen has regarded rheuma, coryza, bronchus, and catarrhus as synonymous terms, scarcely indicating varieties of the same disease. The arrangement of Dr. Cullen, moreover, did not allow him to place bex, tussis or cough, any where else; and being obliged to yield to the force of necessity, he has made cough also a synonym of catarrh, and has treated of it under this genus. It is here the present system differs from Dr. Cullen, as it does likewise in separating coryza from the list of phlogotic affections. Cough is not necessarily a pyrectic or inflammatory disease, though it may be occasionally a symptom of such disease. Cough therefore, under the Greek term BEX, we have already considered, as well as CORYZA, under the second or PNEUMATIC class; where they will probably be allowed by most nosologists to occupy more correct and natural posts than in the pre-

compared with the arrangement of Cullen.

Signification in the present system.

Gen. IX.
Catarrhus.
Catarrh.

sent place. Catarrh, thus explained, embraces the two following species:

1. COMMUNIS. COLD IN THE HEAD OR CHEST.
2. EPIDEMICUS. INFLUENZA.

Under neither of these species can catarrh be regarded as a dangerous or very serious disorder, unless neglected or treated improperly; or unless it occurs with great severity in persons of delicate lungs or possessing a consumptive diathesis; in all which cases its result may be very mischievous, and lead on to pneumonitis, bronchitis, phthisis, or dropsy of the chest, though in itself, and separate from such concomitants, by no means alarming.

SPECIES I.

CATARRHUS COMMUNIS.

Cold in the Head or Chest.

FEVER SLIGHT; MUCOUS DISCHARGE CONSIDERABLE.

Gen. IX.
Spec. I.
Synonyms.

This is the *pose* of old English writers, a term precisely synonymous with the *gravedo* of Celsus, which is also employed in the earlier medical works of our own country. To *pose* is still used in the sense of to stupefy, and the real meaning of posie is a "narcotic charm," and hence a nosegay of tranquillizing odour inducing repose or sleep. The common symptoms of this species are a sense of fulness in the head, and of weight over the eyes, which are inflamed and lachrymose. The nostrils are obstructed, and pour forth a thick acrimonious ichor, which excoriates the skin as it descends, accompanied with frequent sneezing. The voice is hoarse, the

Description.

Gen. IX. Spec. I. Catarrhus communis. Cold in the head or chest.

fauces sore, and the lungs loaded, often producing a troublesome cough.

Causes.

Its usual cause is suppressed perspiration from cold; whence Dr. Cullen conceives that cold is the constant and only cause, and would in every case be detected to be such, were men acquainted with, and attentive to the circumstances which determine cold to act upon the body.

From the similarity between the fluid exhaled from the skin and that from the lungs, he conceives, that, whenever the former secretion is obstructed in its flow, it is transferred to, and passes off with the latter; the cough being produced by the stimulus of the increased action, and exhalation.

Something more than cold as a cause at times.

There seems, however, to be, in many cases at least, something more than this; for neither cold nor suppressed perspiration will account for every instance of common catarrh. There are few practitioners, perhaps, but have sometimes known persons thus affected who have been bed-ridden from chronic lameness or some other cause, and have had their chamber warmed night and day by a fire. Some ladies always catch a cold in the head on quitting the town for the country; and others on quitting the country for the town. Something must therefore depend on the actual state of the constitution at the moment; and something upon the variable quality of the atmosphere: and a change in both frequently perhaps concurs in producing the affection of a common catarrh.

Curative process.

Where the attack is slight, medical aid is not often sought for or needed. A few days of domestic repose in a warm but not a close atmosphere, diluent drinks, with an abstinence from animal food, and vinous or other fermented liquors, a sudorific posset at night, with an additional blanket thrown over the bed to encourage perspiration, usually succeed in carrying off the complaint. But if there be a sense of oppression on the chest, or of fulness in the head, with the ordinary signs of fever, venesection should be had recourse to, and a smart purgative immediately afterwards, while the preceding process is still continued. If the cough should be troublesome at night, it will be best allayed by a dose of Dover's powder, which will take off the irritation, and determine to the surface.

Gen. IX. Spec. I. Catarrhus communis. Cold in the head and chest.

Catarrh is also found occasionally, as a symptom, in measles, small-pox, worms, dentition, and rheumatism.

SPECIES II.

CATARRHUS EPIDEMICUS.

Influenza.

THE ATTACK SUDDEN; GREAT HEAVINESS OVER THE EYES; FEVER STRIKINGLY DEPRESSIVE; EPIDEMIC.

This species differs chiefly from the preceding in the abruptness of its incursion, the severity of its symptoms, and very generally in the rapidity of its transition. It probably also differs in the nature of its remote cause, which we shall briefly inquire into after attending to its diagnostic character.

Gen. IX. Spec. II. How distinguished from the preceding species.

Description.

It commences, according to Dr. J. C. Smith, who has accurately given us its progress as it appeared in 1781 and 1782, with the usual catarrhal symptoms, in conjunction with others that are far more distressing to the patient, and often not less alarming to the physician; such as great languor, lowness and oppression at the præcordia; anxiety, with frequent sighing, sickness, and violent head-ache. The pulse is peculiarly quick and irregular, and at night there is often delirium. The heat of the body is seldom considerable, particularly when compared with the violence of the other symptoms; the skin is moist, with a tendency to profuse sweating;

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the tongue moist, but white or yellowish. Sometimes there are severe muscular pains general or local; at other times, erysipelatous patches or efflorescences on different parts of the body, which, in a few rare instances, have terminated in gangrene and death. From the onset, for the first twenty-four or forty-eight hours, the symptoms are extremely violent, far beyond the danger or duration of the distemper. For the most part it attacks the healthy and robust; children and old people either escape entirely, or are affected in a slighter manner. Pregnant women, however, are disposed to miscarry, and the flooding is in some cases fatal. Patients also subject to pulmonic complaints suffer much from the cough, difficulty of breathing, and other peripneumonic symptoms, which occasionally lead on to dissolution*.

Symptoms vary in severity in different cases.

Such is the general progress of influenza in most of the periods in which it has shown itself. But in every period its symptoms have considerably varied in severity in different individuals. In many instances, they have scarcely exceeded the signs of a common cold; in others, the pleuritic pain has been very acute, or the head-ache intolerable, shooting up to the vortex with a sense of splitting; the pulse has been a hundred and forty, and often considerably more, in a minute, with incoherency or delirium from the first night. Yet cases of real danger are very few; and the violence of the disease is over frequently in forty-eight hours; sometimes in twenty-four. Those who have suffered appear to be insusceptible of a second attack during the continuance of the epidemy, though they have no indemnity against the next that may appear. In many cases, however, the general debility induced on the system does not terminate with the catarrh itself, but remains for weeks, perhaps for months afterwards, and is sometimes removed with great difficulty.

Sometimes succeeded by great chronic debility.

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* Medical Communications, Vol. I. p. 71.

GEN. IX.
SPEC. II.
Catarrhus epidemicus.
Influenza.

Disease described by the Greek writers.

How regarded by Sydenham.

The disease has been known and described from the time of Hippocrates to the present day: and is dwelt upon at great length by Sydenham, who regarded it in the autumn of 1675 as a general cough produced by cold and moist weather, grafted upon the autumnal epidemy, and varying its symptoms; whence the fever, which had hitherto chiefly attacked the head or the bowels, now transferred its violence to the thorax, and excited symptoms which had often a semblance to those of genuine pleuritis, but in reality were not so, and demanded a different and less evacuant treatment; the patient being uniformly made worse by copious and repeated bleedings; though a single moderate venesection was often useful, and in a few instances a second; beyond which Sydenham always found it mischievous to proceed. And in proof that this was the real nature of the case, he observes, that, "these catarrhs and coughs continued to the end of November, after which they abated, but the fever still remained the same as it was before the catarrhs appeared;" meaning that it then returned to its essential character: "although," he continues, "it was neither quite so epidemic, nor accompanied with quite the same symptoms; *since these incidentally* depended upon the catarrhs."

Unquestionably an epidemy:

Influenza, however, as we shall have occasion to show presently, has not only occurred in the autumn, but in every season of the year, whether hot, cold, damp, or temperate; and when there has been apparently no other constitutional distemper with which it could unite itself. That it is an epidemy, cannot be doubted for a moment: yet this is to advance but a very little way towards a knowledge of its origin or remote cause; for we have still to inquire into the nature of epidemies, their sources, diversities, and means of diffusion; often, as in the case of spasmodic cholera, in the very teeth of periodical winds and other meteorological phænomena that we might fairly conclude, if we did not know the contrary, would irresistibly oppose their progress, or disintegrate their principles, and consequently

though the causes and nature of epidemies but little known.

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abolish their power. Dr. Sydenham, with the modesty which peculiarly belongs to himself, and always characterizes real knowledge, freely confesses his ignorance upon the subject, though he is rather disposed to ascribe them to "some occult and inexplicable changes wrought in the bowels of the earth itself, by which the atmosphere becomes contaminated with certain effluvia, which predispose the bodies of men to some form or other of disease;" while Hippocrates, who had pursued the same recondite subject with the same indefatigable spirit upwards of two thousand years before, resolves them with a devotional feeling which would do honour to the philosophy of the present day, but which the philosophy of the present day has not always evinced, into a present divinity, a providential interposition; for such, as Galen informs us, is the actual meaning of his TO ΘΕΙΟΝ *, and not some unknown and latent physical principle of the atmosphere, as various expositors have conceived: "non enim quæcunque causas habent incognitas et abditas DIVINA vocamus; sed ubi admirabilia videntur duntaxat †."

Still further examined as to probable causes.

An epidemy, however, or state of the atmosphere capable of producing any general disorder, whether originating specially or in the ordinary course of nature, may depend upon an intemperament, or inharmonious combination of the elementary principles of which it consists, or upon some foreign principle accidentally combined with it, and which has of late years more especially been called a miasm or contamination. It is possible that both these may be causes of different diseases; and, in this case, the term epidemy might be more correctly limited to those which issue from the first cause than from the second: and Dr. Hosack has endeavoured thus to limit it. But as it is rarely that we can distinguish between the two, and especially as the term has been very generally applied to diseases arising from both

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* De Prognost. Lib. I.

† Comment. in Progn. Hipp.

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sources, it is not worth while to alter its common signification.

Influenza how accounted for. Sometimes traced to the first of the above causes.

In the disease before us, many writers have endeavoured to trace it to the first of the above causes, and particularly to the atmosphere's being in a state of negative electricity; and M. Weber, fully confiding in this cause, has recommended, somewhat whimsically, the use of socks made of the most powerful non-conductors, as oiled-silk, or paper covered with sealing-wax, as a certain prophylactic *. Others, without undertaking to determine in what the atmospheric intemperament consists, have regarded it as a mere exciting cause of catarrhs, or, in other words, as merely rendering the body more susceptive of the ordinary causes of this disease, and hence converting a sporadic into a general distemper.

More generally to the second.

More commonly, however, catarrh as well as other epidemics have in modern times been contemplated as dependent upon the second of the aerial causes just adverted to, namely, the existence of a specific miasm, or morbid principle of a peculiar kind into the atmosphere, distinct from any change in the combination of its proper elements †. There is much, indeed, to support this opinion; for in many cases, as in intermittent and remittent fevers, we can manifestly trace such an origin; and, as we have already shown that contagions and miasms are often identic or nearly so, the former may be brought forward as abundantly confirming the same view.

Identity of contagions and miasms.

This identity, or approach to identity, between contagions and miasms, is closely connected with the present subject, and must be a little examined into for its clearer elucidation.

In treating of the origin and laws of febrile miasm, we observed, that it is of two distinct modifications, or

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* Rahn. Briefwachsel, mit seinen chemaligen, Schülern. Band. II. Zürich, 8vo. 1787.

† See especially De Mertens Observ. Med. Tom. II. 4. and Simmons, Lond. Med. Journ. 1788. P. IV.

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proceeds from two distinct sources*: that in its ordinary course, it first appears as the result of a decomposition of dead organized matter operated upon by the common auxiliaries of putrefaction: but that afterwards, "during the action of the fever thus produced, the effluvium from the living body is loaded with miasm of the same kind, completely elaborated as it passes off, and standing in no need of the decomposition of the effluvium for its formation; under which form it is commonly known by the name of contagion."

Doctrine applied to influenza. Hence influenza produced by contagion and miasm.

I may now add, that as primary febrile miasm is not the only miasm generated in the atmosphere, so it does not seem to be the only miasm that gives rise to contagion: that both are very numerous in their kinds, and that specific contagions are, though perhaps not always, yet far most generally, a result of specific miasms produced as above. This seems especially to be the case in respect to influenza; for though most individuals labouring under it are evidently affected from an atmospheric taint, many, as we shall show presently, appear, as in the case of remittent or typhous fever, to receive it from personal contagion: nor is there, in fact, any reason why a puriform discharge from the mucous membrane of the nostrils may not be contagious, as well as a puriform discharge from the mucous membrane of the eye-lids in ophthalmy, or from the urethra in blenorrhœa, or, as we shall shortly have to notice, from the rectum in dysentery.

Illustrated from diseases in other animals.

Among dogs and horses we perceive the same disease, in many instances highly and extensively contagious, and accompanied with so violent a degree of fever as to be peculiarly dangerous, especially to the young of these kinds. In South America, in particular, this affection is so violent that half the dogs pupped there are supposed to die of it while sucklings.

Distemper among dogs, what.

Whence in common language it is called emphatically *the distemper*, though vulgarly the *snaffles*, or rather *snuffles*, from the state of the nostrils. In nosology it is commonly called catarrhus *caninus*.

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* Class II. Ord. I.—Remote Cause of Fever.

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Specific diseases of one kind of animals rarely attack others.

Generally speaking, specific miasms and contagions capable of affecting one kind of animals, are incapable of affecting any other kind; or at least rarely extend their influence any further. In a few febrile pestilences, quadrupeds and birds seem to have been fellow-sufferers with mankind, as we have already had occasion to notice under EPANETUS MALIGNUS, or malignant remittent fever. But this is not common; and in some instances is well known to have depended upon the general dearth of a country, or the insalubrity of the preceding harvest. A few of the exanthems, as cow-pox, are capable of propagation from one species to another; but the greater number of them are not, or only with great difficulty. When a putrid fever has broken out among a ship's crew, the live stock has never been known to suffer from it: and it has happened occasionally, when large numbers of sheep and hogs have been stowed in a ship for the purpose of exportation, sometimes the former have been attacked with infectious fever, and sometimes the latter; but the sheep have never communicated it to the hogs, nor the hogs to the sheep, nor either of them to the ship's crew. "It seems to be a general law of nature," observes Sir Gilbert Blane, "at least among the mammalia, that accumulation and stagnation of the exhalations of the living body produce disease. The glanders of horses arise only in large stables, and the distemper of dogs in kennels. During the American war, it was proposed to send live sheep from England across the Atlantic. In a few weeks, in consequence of being crowded in a ship, they all died of a febrile disorder."—"In the expedition to Quiberon in 1795, several horse-transports had their hatches shut for a length of time in a storm, by which means eight horses were suffocated. Those which survived became affected with the glanders soon after they landed. Professor Colman saw twenty of them under this disorder; a considerable number had been previously destroyed *. It does not appear that in either of

Illustrated.

Glanders of horses from concentrated effluvium of their own kind only.

Sheep affected from like cause and with like limitation.

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* Med. Chirurg. Trans. iv. 89. 475.

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these instances, the respective disorders were communicated from one genus or species of animals to another.

That the catarrh before us possesses not only an epidemic character, but is dependent on atmospheric influence, is established by such a cloud of well known proofs, that it is hardly worth while to give examples. Of a dozen persons in perfect health in the same room, ten have often been attacked as nearly as possible at the same time. In the influenza of 1782, three families, consisting of seventeen persons, arrived on the same day at an hotel in the Adelphi all in perfect health. The next day they were all affected with the symptoms of the reigning disease*. In an hospital, containing a hundred and seventy persons, more than a hundred were, on one occasion, attacked within twenty-four hours; and few of the remainder escaped afterwards.

We have said, however, that the middle-aged, the strong, and the robust are affected soonest, and suffer most severely, while the young and the old are less susceptive of its influence. In proof of this, we may advert to the fact, that healthy and well disciplined soldiers suffer peculiarly. In 1782, this was especially the case at Aberdeen: at Dublin there were, at the same period, seven hundred soldiers confined under it in their barracks at once, and incapable of doing their duty†; while at Utrecht the number amounted to not less than three thousand. On the contrary, out of seven hundred boys in Christ's Hospital, during the same epidemy, only fourteen had the disease, and all of them in the slightest manner‡.

Proofs of communication by contagion.

The proofs of communication by personal contagion are not less decisive. "The first," says Dr. Hamilton, describing the influenza of 1782, "who were seized with it at Norwich, were two men lately arrived from London, where it then continued to rage. A serjeant

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* Med. Trans. Vol. III. p. 59.

† Dr. Hamilton, Mem. Med. Soc. of Lond. 1782.

‡ Med. Trans. Vol. III. p. 56.

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of grenadiers in the 10th regiment of foot went to London on furlough: the disease then raged in the capital. He returned, in a few days, to St. Albans, affected, and communicated it to the people in whose house he had his billet. This was the first of its appearance there: and from thence it spread rapidly all over the town*."

General phænomena unvaried from an early period.

Dr. Cullen, in his Synopsis, has followed the more striking returns of influenza from the fourteenth century down to the present times; or rather from the Cronica Meteorologica Toscana of 1323, by *Targioni Tozzeti*, to *Saillant's* Tableau des Epidemies catarrhales. "In all these instances," says he, "the phænomena have been much the same; and the disease has always been particularly remarkable in this, that it has been the most widely and generally spreading epidemic known. It has seldom appeared in any one country of Europe, without appearing successively in every other part of it." And, in some instances, the infection has passed the Atlantic with little or no remission of its severity, and attacked Americans, who had not had the slightest intercourse with Europeans.

Extensive range of the epidemy.

And hence we are capable of tracing it at sea as well as on land. In the epidemy of 1782, Lord Anson sailed in the month of May with a fleet for the Dutch coast; and admiral Kempenfelt for that of France. The crews of both fleets were well on sailing: but in the same month both were attacked very generally, and the latter was obliged to return home. The previous state of the air, with respect to any of the sensible qualities of heat, cold, electricity, or damp, seem to have exercised but little power. Influenzas have recurred at every different season, in every state of the barometer, thermometer, and hygrometer.

Little influenced by meteorological changes.

Thus the influenza of 1762, one of the severest on record, producing effects which continued, in many instances, for two or three years afterwards, was preceded

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* Mem. Med. Soc. of Lond. ut supra.

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by weather uncommonly warm; while in that of 1767, being the next in rotation, which was also very severe though productive of less durable mischief to the constitution, the weather was remarkable for being unusually cold*. We know nothing of the country from which the disease has at any time taken its rise; but it has frequently seemed to proceed from north to south, though it has occasionally travelled from west to east. That of 1781 and 1782 is said to have originated in China, and to have travelled through Asia into Europe; whence it crossed the Atlantic, and arrived the ensuing year in America. But this assertion wants confirmation. If we allow its materies to depend upon specific miasm floating in the atmosphere, we can only account for its preserving its agency so long, and operating in such distant theatres, by supposing that its particles are with great difficulty dissolved or decomposed in the air, even when in its purest state or highest degree of agitation by tempests. Of the specific miasms we are a little acquainted with, some seem to dissolve or lose their power much more readily than others, and hence spread their influence through very confined peripheries; while others are only dissoluble in a pure atmosphere, and consequently retain all their virulence in an air already saturated with other foreign elements: properties which the author has already endeavoured to exemplify and illustrate in the inquiry into the Remote Cause of Fever†.

Chronology of the chief influenzas.

The chief influenzas that have visited Europe within the last three centuries, occurred in the following order of time: 1510; 1557; 1580; 1587; 1591; 1675; 1709; 1732-3; 1743; 1762; 1767; 1775; 1781 and 1782: since which period the return of the disease has been little noticed in respect to extent or violence

Remedial treatment.

The remedial treatment need not detain us long, notwithstanding the violence with which the disease makes its assault. Bleeding, as we have already observed, is

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* Dr. Heberden, Med. Transact. I. Art XVIII.

† Vol. II. p. 76.

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rarely required, and, from the debility so soon induced, should be avoided, except in urgent pleuritic pains, which are not common. It was tried copiously by many practitioners in 1782, but they soon reverted to the cautionary track of Sydenham. Quiet, diluent drinks, and the promotion of that easy breathing perspiration which Chenot has distinguished by the name of dipnoe, will usually be found sufficient, if the bowels be kept free from confinement. If the chest be much loaded, an emetic will afford the best relief. And if the cough be troublesome, and the breathing laborious, both which, however, are generally alleviated by an emetic, small doses of ipecacuan, with or without oxymel of squills, will promote an easy expectoration, and take off the sense of oppression. Dr. Cullen joined these with opium, and was particularly attached to the use of Dover's powder in all catarrhal affections, asserting that there is no disease in which opium has been found more useful*. But it generally agrees better in common catarrhs than in influenza. The subsequent debility may be removed by a free use of the bark, gentle exercise, pure air, cold bathing, and a liberal regimen: which last, indeed, should be continued through the disease itself. The cough, occasionally produced, remains sometimes as a sequel, long after the other symptoms have disappeared: and, in this case, opium with camphor, or the resinous balsams, often affords essential relief, and especially at night; yet it has not been found that even the symptom of a cough has proved any impediment to the use of the bark, or even to that of cold bathing, or been augmented by the practice, as influenza has rarely terminated in phthisis; and, according to Dr. Carmichael Smith, is less disposed to produce this complaint than a common catarrh.

Treatment.

Subsequent symptoms how removed.

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* Mat. Med. Part II. Ch. VI.

GENUS X.

DYSENTERIA.

Dysentery. Bloody Flux.

INFLAMMATION OF THE MUCOUS MEMBRANE OF THE LARGER INTESTINES; GRIPING AND TENESMUS; FREQUENT AND OFTEN BLOODY DEJECTIONS; THE FECES SELDOM DISCHARGED, AND IN SMALL QUANTITIES.

GEN. X. Difficulty of classifying the disease.

FROM the mixed character of this malady there is some difficulty in fixing its exact place in a nosological classification. The severe local symptoms give it a close affinity to the enteric diseases; while the fever that is so general, though not a constant concomitant, often most alarming from its violence and malignity, and frequently assuming a remittent character, seems to mark it for some order in the pyrectic class.

Whether contagious, and in every form so?

There is also another discussion to which dysentery has given rise, and which has sometimes been conducted with considerable warmth. When it is accompanied with a high degree of fever, and a copious discharge of mucous, bloody, membranous, or filmy matter, it is admitted on all hands to be contagious, though it has been debated whether the matter of contagion is thrown forth from the body of the sick, or from the putrescent recrements. But the grand question that has been agitated is, whether dysentery ever exists without contagion? or, in other words, whether, when the disease exists without those virulent symptoms which are clearly indicative of contagion, it is entitled to the name of dysentery?

Dr. Cullen, who, if he did not first start this contro-

Gen. X. Dysenteria. Dysentery. Bloody-flux.

versy, has followed it up with a more peremptory opinion than perhaps any other writer, has contended for the negative of the question; and has hence not only arranged the disease under his class PYREXIÆ, but generically distinguished it by the character of PYREXIA *contagiosa:* asserting, in his Synopsis, that he has never met with more than one species; and still more distinctly in his First Lines, that "the disease is always contagious," and that the contagion is probably at all times specific*.

According to Cullen always contagious when genuine dysentery:

Dr. Parr and Dr. Young make a nearer approach to the general opinion of Dr. Cullen than any other nosologist I am acquainted with. They regard the disease as an inflammatory affection; but seem to differ from Dr. Cullen in believing it to be essentially and at all times contagious: the former limiting himself to the expression that it is *generally* so; the latter, that it is *often* so.

and the contagion specific:

The earlier nosologists, however, have laid little or no stress on either the pyrectic or the contagious character of the disease; and hence in Sauvages, Linnéus, Vogel, Sagar, and Macbride, it occurs as a genus under the division, not of fevers but of fluxes, without any notice of fever or contagion except as a distinctive symptom in some of their species.

though some writers pay no attention to its possession contagion or fever.

In these circumstances we cannot do better than turn back our footsteps to the minute and accurate description of Sydenham, and take him as our pole-star: under whose clear guidance we shall seldom fall into error, and whose view of the subject has best harmonized with whatever degree of practical information has fallen to my own share. In the running comment to this disease, contained in the volume of Nosology, I have endeavoured from a careful perusal of all his writings that relate to the subject, to give a brief summary of his history of dysentery, and the arrangement under which he had contemplated

View of Sydenham.

Consonant with that of the author.

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* Part I. Book V. Chap. II. Sect. MLXXV.

GEN. X. Dysenteria. Dysentery. Bloody-flux. How described by Sydenham.

it from year to year; and as this summary cannot well be further curtailed, I must beg leave to quote it as it is there written.

"In the year 1662," says he, "cholera, dry gripes, or colic without stools (immania ventris tormina sine dejectionibus), and dysentery, were very frequent. In the following autumn the last two diseases returned; and in the midst of their raging appeared a new kind of fever (novum febris genus) which accompanied both diseases, and not only seized those that were afflicted either with the one or the other, but even those that were free from each; resembling the fever that *not unfrequently* (non infrequenter) attended the two preceding diseases, and which was hence distinguished by the name of *febris dysenterica.*"

Omitting the consideration of the tormina or gripes, we here meet with a brief account of, 1. simple dysentery, or without fever; 2. dysentery complicated with the fever that *not unfrequently* attended it; and 3. a new fever resembling this last. And we also find that simple dysentery, or that without fever, may at times be epidemic or contagious, as well as that with fever.

The foregoing passage, however, forms only the opening of the first chapter. It is in the third that this admirable observer and excellent writer enters fully into a description of the epidemical dysentery of the period before us; in which he tells us, that in the course of the autumn of 1669 the dry gripes (ventris tormina sine dejectionibus) and dysenteries raged nearly equally; and that "*sometimes a fever accompanied them, and sometimes not*:" febris nunc iis accessit, nunc aberat. "At times," says he, "the dysentery commences with rigor and shivering, succeeded by a heat of the whole body, as is the case in fevers—but *frequently there is no appearance of fever*, for the host of gripings take the lead, and the dejections follow." He pursues his description of the *simple dysentery*, or that without fever, observing that in this species an excrementitious stool is sometimes interposed without considerable pain; and then enters

Gen. X. Dysenteria. Dysentery. Bloody-flux.

upon the *species accompanied with fever*, "In the mean time," says he, "*if* the patient be in the vigour of life, or have been heated by cardiacs, *a fever arises*, his tongue is covered with a thick white mucus, and if he have been much heated, it is black and dry; there is great prostration of strength, exhaustion of spirits, and every symptom of an ill-conditioned fever."

It is not necessary to pursue his description of this second species further. It must be obvious to every one, that, in the opinion of Sydenham, dysentery, as a genus, embraces at least two distinct species, both of which, at the period of his writing, were epidemic; the one of a milder nature without fever, the other of a malignant nature with it.

The former of these is often met with in private practice, of sporadic origin, and without evincing any contagious character. The latter is perhaps, as Dr. Cullen asserts, at all times contagious. Since writing the above, the author has met with Dr. Harty's "Observations on the Simple Dysentery and its Combinations, containing a review of the most celebrated authors who have written on this subject:" in which much of his own opinion is confirmed, and copiously illustrated.

It is only necessary to observe further, that though there may be, at times, no contagion, and little or no fever, there seems to be always some degree of inflammation in the colon or rectum, occasionally perhaps extending higher; an inflammation of a peculiar kind, with a strong tendency, when violent, to run rapidly into a state of gangrene; but, when milder, exciting that increased flow of mucus, which is common to the inflammation of all mucous membranes, and which is especially conspicuous in opthalmy and in catarrh. On this last account it appears to me that the proper nosological place for dysentery, as a genus, is immediately after these two diseases; though, from too close an adherence to the concurrent arrangement of the earlier nosologists, it will be found placed, in the physiological

Always accompanied with inflammation if not always with contagion.

Hence its proper nosological place pointed out.

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synopsis, under the order ENTERICA of the class CŒLIACA, a position which I now beg the reader to correct.

The *febris nova* or *dysenterica* of Sydenham seems hardly entitled to consideration as a distinct species. It was the common epidemy of the season, accompanied with or succeeded by a few of the slighter symptoms of dysentery, without the pathognomic evacuations. Putting this, therefore, out of the question, dysenteria, as contemplated by this great writer, and as confirmed by the general experience of the present day, seems to include the two following species:

1. DYSENTERIA SIMPLEX. SIMPLE DYSENTERY.
2. ———— MALIGNA. MALIGNANT DYSENTERY.

SPECIES I.

DYSENTERIA SIMPLEX.

Simple Dysentery.

FEVER SLIGHT OR UNPERCEIVED; THE FECES, WHEN DISCHARGED, EVACUATED WITHOUT CONSIDERABLE PAIN, OF A NATURAL QUALITY AND AFFORDING EASE.

Gen. X. Spec. I. Bowel complaints why most frequent in summer and autumn:

THE atmospheric temperaments chiefly calculated to produce severe bowel complaints are those of summer and autumn; when the liver is excited to a larger secretion of perhaps more pungent bile, from the greater heat of the weather; the skin is exposed to more sudden transitions from free to checked perspiration; and the exhalations that rise so abundantly from marshes and other swamps too often give an epidemic character to the atmosphere, and lay a foundation for intermittent and remittent fevers.

GEN. X. SPEC. I. Dysenteria simplex. Simple dysentery.

We have here sufficient ground for local and general affection, and may readily see how it is possible, from the operation of one of these causes singly, or of two or all of them jointly on an irritable state of the intestines, for all or any of the local symptoms to be produced which enter into the generic or specific definition of the disease before us; as also how it is possible for these symptoms to be combined with fevers of various kinds and various degrees, so as to render the complaint peculiarly complicated and dangerous; though we have not yet been able to find out what are the precise causes that, operating locally, produce the distinctive symptoms of dysentery rather than those of diarrhœa, cholera, or any other irritation or spasmodic action of the intestinal canal. This may, perhaps, sometimes depend upon idiosyncrascy, sometimes upon accident, and, in the severer cases, upon contagion or a specific miasm.

and hence dysentery in the same seasons: alone or combined with other diseases.

General seat of the disease.

The symptoms, however, already noticed sufficiently point out the general seat of the disease; the tormina or griping pains, the region most affected by them; and the costiveness or nodules of feces that are dejected, the existence of spasmodic constriction in or about the colon or the upper part of the large intestines. And while such is the state of the canal above, the excessive straining or tenesmus, accompanied with a discharge of simple or bloody mucus, shows, as distinctly, the existence of great irritation in the sphincter and its vicinity. In some cases one of these parts is more affected, and in some another; and hence the origin of the dispute concerning the precise spot of the disease, which Stoll places altogether in the colon*, and other writers in the rectum†; while Piso contends that the liver is always affected, and indeed the organ principally concerned‡; reasoning from the bloody or atrabiliary dejections that are a symptom in the severer cases.

Sometimes one part more affected than another: and hence disputes concerning its immediate seat.

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* Nat. Med. Part. III. p. 294—326.

† Cawley, Lond. Med. Journ. 1786.

‡ Discours sur la Nature, &c. des Maladies accompagnées de Dysenterie.

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Liver sometimes sympathetically affected:

That the irritation existing in the larger intestines may occasionally extend to the mouth of the hepatic duct, and produce a sympathetic excitement in the liver, is highly probable; and indeed appears obvious from the increased flow of bile, often of a deeper colour, that sometimes accompanies the dejections, in the remission of the spasmodic constrictions, and points out some alliance between this disease and cholera; both which, as Sydenham has sufficiently shown, in certain seasons co-exist as epidemics. But a mere increased secretion of bile cannot readily be contemplated as the proximate cause of dysentery; for its usual effect is to quicken the natural motion of the intestinal canal, and to produce looseness rather than constriction.

but a mere increase of bile not a proximate cause of the disease.

How far other intestinal irritants may form such a cause.

How far any other irritant, as putrid vapours, crude fruits, or acrid food, accidentally introduced into the intestines when under a state of peculiar morbid sensibility, which it seems necessary to pre-suppose, is capable of exciting dysentery, may perhaps admit of a doubt; though we have no reason to conceive that any such irritants are a common cause. And still less can we concede to the hypothesis of the Linnéan School, that the disease is produced by the larves of a species of tic or acarus, which the Swedish naturalist has too hastily introduced into his classification under the name of acarus *dysenteriæ*: and which Rolander, who laboured under repeated attacks of this affection while residing with Linnéus, pretended to trace from water deposited in a cistern of juniper-wood*.

Not produced by larves of insects as supposed by Linnéus.

Ordinary exciting cause, suppressed perspiration from cold.

The ordinary exciting cause of simple dysentery, there can be little question in the present day, is suppressed perspiration or a sudden chill applied to the surface, acting in conjunction with the predisposing cause of an atmosphere varying rapidly from heat to cold and from moist to dry: on which account the disease is to be found most frequently in the æstival and autumnal months; and occasionally as an epidemic of the season.

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* Amœn. Acad. v. 82 et alibi

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But by what means this exciting cause operates upon the larger intestines rather than upon any other cavity, or produces the symptoms of dysentery rather than those of diarrhœa, cholera, or colic, we seem to be incapable of determining. We perceive, however, in the events of every day, that sudden chills on the surface are possesed of a revellent power, and throw the action which is lost on the skin on various internal organs, and especially on cavities of mucous membranes, which, in consequence of this excitement, become inflamed, and pour forth an additional secretion. Such is especially the case in rheumatism and catarrh, both which terms are derived from the same Greek root, and import defluxion. And from this common character the three diseases have by some pathologists been conceived to be so much alike, that dysentery has been regarded as an intestinal rheumatism by Cœlius Aurelianus, Akenside, Stoll, and Richter; and is actually set down, by Dr. Parr, as a species of catarrh, in his nosological classification.

Its action illustrated by that of rheumatism and catarrh.

Diagnosis

The diagnostics are arranged by Sydenham as follows, after observing that the disease sometimes begins with the febrile symptoms of rigor, shaking, and a hot fit. "But frequently there is no appearance of fever; for the host of gripings take the lead and the dejections follow. The gripings are always severe, and a sort of painful descent of the bowels accompanies every evacuation. The discharges are chiefly mucous, but an excrementitious stool sometimes intervenes without considerable pain. The mucous stools are generally streaked with blood; but in some cases there is no such appearance through the whole course of the disease. Nevertheless, if the stools be frequent, mucous, and accompanied with gripings, the disorder may as justly be called a dysentery as if blood were intermixed with them." He afterwards observes, that, however severely the disease may make its attack on adults and aged persons, which last fall a sacrifice to it more frequently, it proves very gentle in children; who sometimes have it for several

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months if left to nature, and even this without inconvenience.

Medical treatment as proposed by Sydenham.

Venesection copious.

Where the patient was of a plethoric habit, and the symptoms violent, and especially if accompanied with a pyrectic onset, the usual practice of this master of his art was to begin with venesection, to give an anodyne at night, and an aperient of tamarinds, senna, and rhubarb in the morning, in the proportion of half an ounce of the first, two drachms of the second, and a drachm and a half of the third. "I prefer," says he, "the use of rhubarb in this form to giving it alone or in a smaller quantity, because unless it acts thoroughly it does not much conduce to a cure; and because, also, though more powerful cathartics might be employed, they would but aggravate the gripings and increase the general disorder and especially the depression of spirits. And hence even

Anodynes.

after the rhubarb purge, I commonly give the anodyne at an earlier hour than usual; indeed at any time in the afternoon, as soon as the laxative has ceased to operate, and thus get rid of the excitement it has occasioned. This purgative I repeat twice every other day, always following up the dose with an anodyne as above; and I resort to the anodyne every morning and evening, even when no aperient is given, that I may repress the violence of the symptoms, and gain a truce while I am evacuating the peccant humour. The anodyne I make use of is sixteen or eighteen drops of laudanum in a dose of

Mild cardiacs.

cordial-water of any kind: and after the first bleeding and purging, I allow any temperate cardiac to be taken occasionally in compound scordium or some other distilled water, through the whole course of the disease."

Diluents.

For common drink he prescribed milk and water, or the white decoction, with crumbs of bread, or posset-drink; and where there was much debility, he allowed a beverage of half a pint of sack to a quart of spring-water. The ordinary food was panada or mutton broth.

Opiates.

Dr. Sydenham's sheet-anchor, however, was his own celebrated liquid laudanum, the vinum opii of the London

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College, but with a much larger proportion of the narcotic: though he only preferred the liquid to the solid laudanum, as purified opium was then called, because of the greater conveniency of dividing it into doses. So attached was he to this medicine, and so persuaded of its permament efficacy, that where the symptoms were more violent he increased the dose, and gave it three times instead of twice a-day, besides prescribing daily an opiate injection: while in the milder cases of the disease, or where it was but little affected by an epidemic temperament, he asserts that even the evacuating plan may be safely omitted, and the cure be more summarily performed by laudanum alone *.

Sydenham's process clear and rational.

The principles on which this mode of practice is founded, are peculiarly clear and rational: for they indicate an attempt to take off inflammatory action; to relax the spasmodic constriction which both blocks up the feces, and produces the griping pains; and to assist the discharge of the feces as the natural passage is sufficiently opened.

Rhubarb whether adviseable.

Rhubarb has been objected to by Dr. Cullen and other modern practitioners on account of its astringency: but Dr. Fordyce has advocated its employment as clearing the primæ viæ better than any other purgative. Its astringent effect, however, is sufficiently guarded against in Dr. Sydenham's prescription by its union with tamarinds and senna. Yet as senna is apt to gripe, even in ordinary cases, it ought to be less employed in dysentery than in any disease whatever; and its place may be well supplied by the neutral salts, calomel, or small doses of tartar emetic. In simple dysentery, opium under any form is an admirable remedy; for it not only tends to quiet the local pain and irritation, but, by augmenting all the secretions except that of the intestinal canal, to excite a general relaxation, and make a revulsion towards the surface. By taking off the spasmodic constriction, it acts,

Senna objectionable.

Opium useful in itself;

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* Sect. IV. Cap. III. passim.

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indeed, indirectly as a laxative, and in this way is also of great advantage. But as its immediate effect on the bowels is to constringe them, it may be very much improved by uniting it with small doses of tartar emetic, or Dr. James's powder; or which, perhaps, in the present disease, is still better, with some neutral salt and ipecacuan, as in the admirable composition of Dover's powder. And with these few alterations it would be difficult, perhaps, to improve upon the plan laid down by Sydenham, for the treatment of dysentery in its simple and uncomplicated appearance. Under this form it is, perhaps, rarely, if ever, contagious; but to guard against the possibility of such a fact, the dejections should be removed with attentive speed; and the sick room be large, and freely ventilated.

SPECIES II.

DYSENTERIA PYRECTICA.

Dysenteric Fever.

ACCOMPANIED WITH FEVER, GREAT LOSS OF STRENGTH, AND DEPRESSION OF SPIRITS: THE FECES, WHEN DISCHARGED, OF VARIOUS COLOURS AND CONSISTENCE; HIGHLY FETID, AND MIXED WITH PUTRID SANIES, SEBACEOUS MATTER, OR MEMBRANOUS FILMS: CONTAGIOUS.

Gen. X. Spec. II.

THIS species, like the last, when an original disease, is chiefly, if not altogether, produced by obstructed perspiration in the more variable temperatures of summer and winter; not limited to local symptoms, but acting in full concert with the fever of the season, or that to which the season predisposes: whence Sydenham asserts, "febrem esse sui scilicet generis, in intestina introversam," "that it is a fever of its own kind thrown inwardly upon the intestines."

GEN. X. SPEC. II. Dysenteria pyrectica. Dysenteric fever.

I have said that obstructed perspiration is the chief exciting cause, when this species of dysentery appears as an *original* disease: for it cannot be denied that under the present form, it appears in innumerable instances as a *derivative* complaint generated by a very active contagion, and hence spreading with tremendous rapidity, through camps or crowds of any kind, consociating too closely without sufficient ventilation, and particularly in swamps or other moist lowlands.

Chiefly produced by cold when an original disease: but by contagion when a derivative.

The fever of the season, or that to which the season, predisposes, may vary: for it may give an inclination to an inflammatory or to a typhous type: or even, where the season is so equally balanced and salubrious as to give no inclination either way, the constitution of the individual may favour the one rather than the other, and thus furnish us at least with the two following varieties, as already laid down by Dr. Macbride:

Changed in its character by the fever of the season.

α Caumatodes.	The accompanying fever being a cauma.
β Typhodes.	The accompanying fever being a typhus.

In the present day the latter seems to be by far the most common; and the description by Sydenham is a sufficient proof that the fact was not very different in his time. And I am hence induced to believe, that it is chiefly in sporadic cases that the dysenteric fever is a cauma; while in those of epidemic or contagious origin, the fever is of a typhous, or at least of a synochous character: of a mixt breed, with a strongly marked tendency to run from a caumatic to a typhous type.

α D. pyrectica caumatodes. Not common: and chiefly sporadic.

β D. pyrectica typhodes. Epidemic and contagious.

The general symptoms of this species are drawn up, like those of the last, with so much correctness and strength of colouring by Sydenham, that we cannot do better than take them in his own words. The dysentery he is describing was an epidemic that raged to a great extent in our own country, in the autumns of 1670 and of the two following years. Having stated how it appeared

Admirably described by Sydenham.

Gen. X. Spec. II. Dysenteria pyrectica. Dysenteric fever.

The description copied.

in its simple form or without fever, he proceeds to its more complicated and severer character as follows. "If the patient be in the vigour of life, or if he have been treated with cardiacs, a fever arises, and the tongue is covered with a thick white mucus; and if he have been much heated, it is black and dry; and there is at the same time great loss of strength, depression of spirits, and all the signs of an ill-conditioned fever. The disease is attended with violent pains and sickness, and, if unskilfully treated, with extreme peril. For when the spirits are much exhausted, and the vital heat diminished by frequent stools, before the matter can be expelled from the blood a coldness of the extremities ensues, and there is danger of death, even within the periods of acute diseases. But if the patient should escape death in this way, still numerous symptoms of a different kind succeed. Sometimes in the progress of the disease, instead of the sanguineous filaments, which are usually mixed with the stools at the commencement, pure blood in a large quantity, and unmixed with mucus, is evacuated at every dejection, which alone threatens death, as manifesting an erosion of some of the larger vessels of the intestines. Sometimes an incurable gangrene seizes the intestines, in consequence of the violence of the inflammation produced by the afflux of hot acrid matter to the affected parts. Towards the close of the disease aphthæ frequently affect the interior of the mouth, especially if the patient have been kept hot for a long time, and the morbid material have been checked in its evacuation by astringents, the fomes of the disease not having been first carried off by purgatives; and such aphthæ generally foreshow imminent death. If the patient survive these symptoms, and the disease prove lasting, the intestines are progressively affected downwards, till the malady reaches the rectum and ends in a tenesmus. And in this case, contrary to what occurred during the afflux of mucus, even the excrementitious stools occasion great pain in the intestines generally; the feces in their passage through them abrading the small guts, while the former

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evacuations only molested the rectum, where alone the mucus was formed and ejected."

Epidemic dysentery of other regions not essentially different.

The epidemic or pyrectic dysentery of foreign climates does not seem to differ essentially from the above: for Dr. Sydenham expressly states that that common to the African coast, on the return of every autumn, was in his day of the same kind, and yielded to the treatment adopted by himself as he was fully informed by Mr. Butler, British Envoy in that quarter: while the history of the dysentery that raged among the British troops in Jamaica in April 1780, as given by Dr. Moseley, is nearly a repetition of the above symptoms; with the exception that it appears to have commenced something more in the form of a cholera, with sickness at the stomach and copious purgings, and that its march was more violent and fatal; for we are told by this distinguished writer that pure arterial blood, to the amount of several ounces, was voided in a stream every half hour, and that some patients bled to death in this manner; while others perished, from the severity of the general symptoms, within three or four days from the time of seizure.

Pathology.

The pathological doctrine of Sydenham, however, that the inflammation of the intestines is produced by the afflux of a hot acrid humour conveyed by the meseraic arteries, has not been able to maintain itself in the present day, notwithstanding the correctness of his general description; and has long passed into oblivion with the hypothesis of acrimonious bile. The nature of the dejections show the fearful mischief produced in the larger intestines. The membranous films are abrasions of the villous tunic; the putrid and fetid sanies evinces the existence of gangrene; and the flow of blood in streams, an erosion of important blood-vessels. The sebaceous matter it is not so easy to explain. In treating of scybalous concretions forming the third species of the genus ENTEROLITHUS under the first order of the first class, I had occasion to show that unctuous matters are unquestionably excerned in the intestines when in a diseased condition of a peculiar kind: and Sir Everard

Symptoms explained.

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Home has endeavoured to prove that it is a part of the natural and ordinary function of the intestines to secrete fat *. This may perhaps give us an imperfect glimpse at the mode in which the sebaceous matter which, by its evacuation so peculiarly marks the disease before us, is generated. And it is unnecessary to follow up the subject further at present, as we have already discussed it at large under the genus Enterolithus just referred to.

Singular extent of gangrene where the patient has recovered.

In one instance the inflammation extended so far that the caput coli was separated and thrown off; and yet the patient recovered: and in others the corrupt and sanious discharge has been found to inclose clustres of animalcules, which have been singularly deposited in the gangrenous tunics of the intestines as their proper nidus.

Curative plan.

Nature of the fever to be attended to.

In laying down a curative plan, our first attention must be paid to the nature and degree of fever with which the disease opens: for if this be very violent, the intestinal inflammation may run with resistless speed into gangrene, and the patient sink from mortification or loss of blood in a day or two, perhaps in a few hours. Where, therefore, the pulse is hard and full, and particularly where there is general pain and tension over the belly, indicating an inflammatory diathesis, blood should be drawn copiously and with all possible speed, and repeated, if necessary, without fear. There is, nevertheless, no disease that requires the exercise of a sounder judgment upon this point than dysentery: for we have already observed that the fever, if not typhous from the first, has a general tendency to pass into this type; and the intestinal inflammation is perhaps of the erysipelatous kind. And hence, unless the indications for it are strong and prominent, this mode of cure had better not be ventured upon.

Bleeding when necessary.

Relaxants.

The next most probable means of diminishing the febrile action is by the use of general relaxants, and especially those which may operate equally on the skin and

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* Phil. Trans. 1813 and 1816.

Gen. X. Spec. II. Dysenteria pyrectica. Dysenteric fever.

on the whole range of the alimentary canal: and these are emetics and diaphoretics, and especially those medicines that produce both these effects at the same time.

Emetics of what kind.

In using emetics, nauseating doses have been recommended by many high authorities in preference to those that excite full vomiting, as possessing a more relaxant power; and on this account some have even ventured to advise that the nausea should be maintained by a repetition of the medicine for some hours. But I cannot regard such a preference as the result of a sound judgment. The relaxation that follows upon nauseating medicines is of the most depressing kind; scarcely any thing so much exhausts the living power; the languor hereby produced is intolerable, and sometimes amounts to deliquium. And hence, how serviceable soever such a state might be in the high tide of an inflammatory fever, it is still more to be avoided in the disease before us, as a general practice, than venesection; for here, with perhaps a few exceptions, we have too much languor and depression already; and stand in need of rousing and strong revulsive action, rather than increased prostration of strength. Now, full vomiting, forming, as I have formerly had occasion to observe, a direct contrast to the effects of nauseating, stimulates and excites the system in every part; and by urging the circulation to the surface, and promoting a copious perspiration, throws back the febrile action to this quarter, and produces the revulsion we stand in need of.

Nauseating to be avoided; and vomiting preferred.

Chiefly by antimonials.

The best emetics for this purpose are the antimonial preparations, and particularly emetic tartar, the antimonial or Dr. James's powder, and the glass of antimony, or rather the cerated glass. All these relax generally, and operate on the larger intestines and on the skin, as well as on the stomach. Sir George Baker, Dr. Adair, and Dr. Saunders, preferred the emetic tartar; the first, alone; the second with calomel; the third, with opium. In the present day, Dr. James's, or its valuable substitute, the antimonial powder, seems to be the favourite

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Cerated glass of antimony.

form. Yet, I cannot avoid thinking that the cerated glass of antimony, the vitrum antimonii ceratum, in which the virulence of the glass is greatly subdued by its mixture with the wax, has very unadvisedly grown obsolete. Sir John Pringle's patronage of this medicine is fully justified by the numerous and irresistible authorities in its favour in the case of dysentery, collected by him, and read before the Royal Society; and afterwards published in the Edinburgh Medical Essays*. It is said to be uncertain in its operation; but this is an objection which has been made by Henermann to all the preparations of antimony†; and to the present not more than to any of the rest: for it must be admitted that the degree of their action depends very much on the state of the stomach, and not a little on the idiosyncrasy. It was long in the hands of empirics before it found its way into regular practice; and the world is, or ought to be, much indebted to Dr. Young for having first introduced it into professional notice. The ordinary dose for an adult is ten grains; but where the bowels alone are intended to be moved, or rather where the object is not to excite sickness, it should be diminished to six grains; in which quantity it rarely excites nausea; and upon the whole, in whatever dose administered, it has a less tendency to irritate the stomach than the antimonial powder; and operates upon the lower belly, especially in dysentery, more efficaciously than any of the cognate forms of the same metal.

Afterwards narcotics.

When, however, the bowels have been by these means thoroughly cleansed as well as the stomach, it will be inconvenient to continue this medicine, and, for the most part, any of the preparations of antimony alone; and we may, with great advantage, have recourse to narcotics for the purpose of mitigating the griping pains and resolving the spasmodic action.

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* Vol. v. Art. xv.

† Bemerkungen, &c. Band. I. p. 184.

Sydenham, as we have already seen, was in the habit of administering a narcotic by itself; after having premised his rhubarb purgative, and preferred his liquid laudanum to all other anodynes whatever. Some practitioners of considerable eminence have even commenced with opiates, upon the ground that to employ purgatives where the intestines are in a state of high irritation and spasmodic constriction, will only increase the obstinacy of the costiveness from the additional stimulus they convey; and consequently that the only means of enabling even purgatives to obtain their proper end, is, in the first instance, to allay the morbid sensibility of the bowels and torpify the spastic power. But, in reply to this, it may be observed, that there can be no worse source of irritation in the bowels at the time than pent-up and indurated feces, increasing in hardness and acrimony, by the augmented heat and absorption which are essential accompaniments of inflammation; and that though the constrictive force never entirely subsides, it occasionally remits and allows the hardened recrement to be squeezed downwards in the form of nodules or buttons. Emollient or narcotic injections may, indeed, at any time be employed to assist their escape, and to these Sydenham himself often had recourse with great advantage: but the violence of the tenesmus and the acute sensibility of the sphincter frequently render it impossible for us to avail ourselves of their use.

These have been sometimes commenced with:

but injudiciously.

Opium has also been applied to the rectum in its solid substance, in the shape of a small pill or suppository: but here again it will be unadvisable if there be much irritation of the sphincter: for as a hard body, it will excite more soreness by its pressure than produce relief by its narcotic effect; and if the tenesmus be considerable it will be impossible to retain it. The only mode in which I have found it useful under these circumstances is, when rubbed into an impalpable pulp with a little of the oil or butter of the cocoa-nut, and rolled up into small pastiles of a sufficient consistency to bear the touch.

May be employed locally in the shape of pastiles.

The best method, however, of employing opium in

GEN. X. SPEC. II. Dysenteria pyrectica. Dysenteric fever.

Most useful in union with relaxants.

dysentery is, by combining it with small quantities of ipecacuan and some neutral salt, as in the preparation of Dr. Dover's powder, already recommended under the preceding species. This may be given in a dose of five grains immediately after the stomach and bowels have been cleared, and continued every five or six hours till the gripings and flux of blood subside, and the pulse becomes softer and slower; which will generally be effected with a considerable perspiration in twelve or fourteen hours; beyond which period the sweating fit should not be pressed at a single time.

Best mode of administering Dover's powder.

Much, however, of the benefit to be derived from Dover's powder, as a sudorific, depends upon its proper administration, and the care taken to co-operate with its influence by a proper adjustment of clothing. For this purpose Dr. Cullen lays it down as a rule that it should be given in the morning, when the ordinary sleep, or term of sleep, is over; "For sleeping," says he, "though not incompatible with, is commonly not favourable to, sweating." This, however, would be, in many instances, to lose much time; and we must always begin as soon as we have it in our power. There is more importance in another part of Dr. Cullen's course, that no drink should be taken into the stomach till some degree of sweat breaks out, lest the powder should be thrown up by vomiting. Beyond which he recommends that the covering on the body generally should not be more than is merely consistent with the intention of sweating; in many cases not more than is ordinarily made use of; but that some considerable addition should be laid over the feet and legs; and that if the sweat should not, by these means, extend to the extremities, boiled bricks or bottles filled with warm water should be applied to the soles of the feet: and further, that, as the heat and perspiration advance, if the patient feel himself too hot and restless, whatever additional covering has been put upon the body generally, and even a part of what has been put upon the lower limbs, should be withdrawn by degrees. He also

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advises that the patient should, from the first, be wrapt in a flannel shirt and laid between the blankets alone, by a removal of the linen sheets, so that he may be surrounded by nothing but a woollen covering. Hillary, in the warmer temperature of the West Indies, obtained a like effect from small doses of ipecacuan alone; as Dr. Lind affirms he has done in our own country, though in cases of great costiveness he employed Ethiop's mineral as an auxiliary. Dr. Darwin amuses us with a singular mode of producing the same result, and one which, if continued long enough, might probably prove as powerful a revellent as any of those already noticed, but which we should not always recommend, nor find our patients disposed to carry into effect. "Two dysenteric patients," says he, "in the same ward of the Infirmary at Edinburgh, quarrelled and whipped each other with horse-whips a long time, and were both much better after it*."

Singular sudorific plan mentioned by Darwin.

The only narcotic that has acquired any reputation in this complaint, besides opium, is that species of strychnos which is best known by the name of nux vomica. It was at one time in considerable use in Sweden and the north of Europe. It is less astringent than opium, but has a much more temulent effect on the head. It was, however, chiefly employed, as we learn from Dr. Hagstroom, as an anthelmintic, from the mistaken view of Linnéus, that dysentery was produced by the irritation of certain animalcules or larves of a species of acarus, accidentally lodged on the villous coating of the intestine affected. With the fall of this hypothesis the practice has fallen also, and is not worth reviving on any account: for if this medicine possess the tetanic power ascribed to it of late by Dr. Fouquier, and which we shall have occasion to notice more at large when treating of paralysis, it must have such a tendency to increase the constriction as far more than to counterbalance any advantage that may be sup-

Nux vomica;

on what ground employed.

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[*] Zoonom, Cl. II. i. 3. 19.

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posed to result from its narcotic effects. Odhelius, however, asserts that he employed it with success in doses of from ten to fifteen grains given once or twice a-day*.

No danger from costiveness or restraint of flux if perspiration continue.

If the costiveness continue, and the flux of blood should at the same time suddenly cease during the perspiration, no danger is to be apprehended: for we have a pretty full proof in the diaphoresis itself that the morbid action of the intestines has been transferred to the surface, and will spend itself there. In general, also, we find this still further confirmed by a moderation of the pulse, and a mitigation of the torminal pains.

Moist skin and soft pulse favourable signs.

The diagnostics of a moist skin and a soft pulse are the best signs of amelioration: and without these Richter does not think the disease can be radically subdued. He allows, indeed, of purgatives, when there is evident proof of too large a secretion of bile; but deducing his opinion from three distinct courses of epidemic dysentery, he regards the bilious affection as merely accessary, and only secondarily to be attended to in the cure of the disease. As a purgative, moreover, he prefers calomel to rhubarb: contending that the former, while it proves more powerful in removing the accumulated bile and correcting its acrimonious flow, operates at the same time more gently than any other cathartic; while rhubarb, under these circumstances, is even a dangerous medicine, and sure to increase the irritation. This view of the case, with the limitation to a bilious afflux, is founded on a sound judgment; but it does not amount to a total proscription of rhubarb in every form of the disease: for even Richter himself employs it in the latter stage of the complaint, as combining the two desirable properties of being a mild aperient and tonic. In the less violent cases of the disease, he commences at once with his diaphoretic plan, by a combination of laudanum with small doses of ipecacuan or antimonial wine; and, where there is much fever, he

Where calomel is preferable to rhubarb; and the contrary.

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* K. Lazarettet i Stockholm, &c. p. 27.—Abhandl. der Schwed. Acad. der Wissensch. Band. xxv.—Rese, Diss. de Nuce Vomicâ. Jen. 1788.

premises an emetic: and, in this case, he also recommends that the abdomen should have warm fomentations or a blister applied to it, or be well bathed with camphorated or some other rubefacient liniment.

Astringents and tonics when necessary.

If, however, the local symptoms and particularly the flux of blood or bloody feces, or mucus, continue in spite of this treatment, they must be opposed by some astringent or tonic as well as by a sedative plan; for the debility alone which will hereby be produced may be sufficient to threaten the life, even though the fever should diminish. And in this case great benefit has been obtained by the mineral acids in union with sulphate of zinc or with opium.

Mineral acids with sulphate of zinc.

The former combination was a favourite medicine with Dr. Moseley, who, of the mineral acids, preferred alum, and varied the proportions according to the strength or age, the degree of costiveness or of hemorrhage, of the patient: sometimes giving two or three grains of each at a dose, to be repeated three or four times a-day; where the hemorrhage is considerable, increasing the alum; and where feculent evacuations were required, diminishing it or even omitting it altogether. The preparation is valuable as it unites a powerful metallic tonic, which is a true character of the sulphate of zinc, with an acid which has the singular virtue of proving astringent to the sanguineous and secernent system, while it produces little effect upon the peristaltic motion, and by some physiologists is thought rather to quicken it. Dr. Adair employed alum alone; but it is greatly improved by the addition of the white vitriol.

Their virtue in combination.

Mineral acids with laudanum.

A like beneficial effect, however, has been derived from uniting the mineral acids with laudanum. The sulphuric, though the pleasantest to the taste, is more apt to irritate the bowels than the nitric. But the best mode of giving the latter is by combining it with muriatic acid in the proportion of two thirds of the former to one of the latter, imitating hereby the chrysulea of Van Helmont, or the aqua regia of later chemists, the nitro-muriatic acid of the present day, in doses of two

Gen. X. Spec. II. Dysenteria pyrectica. Dysenteric fever.

drops of the nitric, one of the muriatic, and ten minims of laudanum, intermixed with infusion of roses or that of the more powerful astringents logwood, catechu, and gum kino. I have employed this medicine with peculiar advantage, not only in dysenteric, but in many other loosenesses and hemorrhages of the bowels, increasing the proportion of the acid or the laudanum as the urgency of the symptoms require.

Acidulous drinks.

When, however, the thirst is considerable, and acidulous drinks are called for, we may for this purpose use the sulphuric acid as the most grateful; though in this case the citric acid will usually be preferred, and the patient may be allowed to exercise his choice. Yet the one or the other of the above compounds should be continued without any alteration in consequence of such a beverage.

Diarrhœa from chronic debility;

As the disease declines, there will often be found a very considerable degree of debility, and a chronic diarrhœa, with occasional discharges of blood from the excoriated state of many of the minute blood-vessels of the mucous membrane of the intestines, or perhaps from a simple relaxation of the mouths of the capillaries. And in this situation, and especially where the disease has assumed a highly malignant character, many of the bitters of the Materia Medica may be resorted to, in connexion with the acids, with great advantage. They have indeed occasionally been given from the first; and in a few very slight cases and very infirm constitutions the practice may have succeeded; but as a general rule of conduct it is highly rash, and has rarely been tried without repentance. Some of them may have a power of stimulating the intestinal canal; or, in large quantities, this, as conjectured by Dr. Cullen, may be a power common to all of them; but their chief virtue is that of increasing the tone, and they cannot therefore be employed at the commencement of the disease, when the fever is severe and the constriction rigid, without certain and essential mischief. In the decline of the disease however, we may take our choice.

to be opposed by bitters and acids.

Have been employed from the first;

but injudiciously.

Simarouba.

The simarouba has been exposed to various fluctua-

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Dysenteric fever.

tions of opinion. It was at one time regarded as little less than a specific for dysentery, and was eulogized not only in the West Indies, but in Europe, as combining the desirable qualities of an excellent tonic, antispasmodic, sudorific, cardiac, and anodyne*. This was to carry its praise too high. By Dr. Cullen it has, on the contrary, been unjustly degraded, who regards it as nothing more than a simple bitter; and even in this view places its virtue below that of chamomile flowers†. Of late years, however, it has again been rising in public estimation; and as a truly valuable tonic, and particularly in intestinal debilities, I am pleased to see it taking a stand in the Materia Medica of the London College.

Cinchona.

The cinchona is of more doubtful efficacy. It will be greatly beneficial where the disease has assumed an intermittent or a putrescent character, but it is apt in many idiosyncrasies to irritate the bowels, and when had recourse to must be closely watched.

Conessi bark.

Columbo.

Of the nerium *antidysentericum* of Linnéus, formerly in high repute, under the name of conessi bark, as an invigorating bitter and tonic in the present and all other debilitating complaints of the alimentary canal‡, I cannot speak from personal trial; but it seems to have fallen into oblivion too suddenly, and deserves a further investigation. The virtues of columbo need not be enlarged upon; they are known to every one in the present day: and under every form this medicine will be found a powerful auxiliary in the hands of a practitioner§ who has judgment enough to seize the proper moment in which it ought to be employed in the progress of dysentery.

In conjunction with this process, the very great tenderness of the interior of the larger intestines, from

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* Lewis's Mat. Med. in verbo. Beaumá Journ. de Med. LVII. 507. Quarin, in Dys. Malign. Animadvers. Gooch's Cases, &c. p. 421.

† Mat. Med. Vol. II. p. 79.

‡ Monro Edin. Med. Essays, Vol. III. Art. iv.

§ Percival's Essays, II. Hist. de la Societé de Medicine. p. 340. 1776.

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Bland injections often requisite.

erosion or abrasion, will often for a long time demand peculiar local attention; and demulcent or bland oleaginous injections, as the infusion or oil of linseed, or olive-oil with a little wax and soap dissolved in it, together with a grain or two of opium if there should be much pain (the whole not to exceed three or four ounces in quantity), will often be found of great assistance, as well in affording present ease, as in forwarding the expansion of a new cuticle.

Lime-water in chronic cases.

In long protracted and chronic cases, lime-water drunk freely has occasionally also proved useful. The coat of the intestinal canal is here, however, sometimes very considerably thickened and indurated. And in such cases the best remedy we can have recourse to is mercury. Houlston recommends such a course to be persisted in to salivation*. Libavius commenced his mercurial plan with mercurial ointment†. Stoll, on dissection, found in several instances the affected intestines thickened, indurated, rigid, yet without ulceration; and sometimes evidently marked with chronic inflammation‡.

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* Observations on Poisons, &c.

† Hornung, Cista, p. 2.

‡ Rat. Med, Part. III. p. 277.

GENUS XI.

BUCNEMIA.

Tumid-Leg.

TENSE, DIFFUSE, INFLAMMATORY SWELLING OF A LOWER EXTREMITY; USUALLY COMMENCING AT THE INGUINAL GLANDS, AND EXTENDING IN THE COURSE OF THE LYMPHATICS.

Gen. XI. Genus new to nosology;

but necessary.

THIS genus is new to nosological classifications: but it is necessary, in order to include two diseases which have hitherto been regarded by most writers as totally unconnected, and treated of very remotely from each other; but which, though occurring under very different circumstances, are marked by the same proximate cause, affect the same organs, and demand the same local treatment. They consist of the following species:

1. BUCNEMIA SPARGANOSIS.	PUERPERAL TUMID-LEG.
2. ——— TROPICA.	TUMID-LEG OF HOT CLIMATES.

Origin of the generic term.

As the present genus is new, it has been necessary to distinguish it by a new name; and on this account the author has made choice of that of *Bucnemia*, from ϐου, a Greek augment, probably derived from the Hebrew בע or בעה "to swell, augment or tumefy," a particle common to the medical vocabulary; and the Greek noun κνήμη, "crus," or "the leg," literally, therefore, "bulky or tumid leg."

SPECIES I.

BUCNEMIA SPARGANOSIS.

Puerperal Tumid-Leg.

THE TUMID LIMB PALE, GLABROUS, EQUABLE, ELASTIC, ACUTELY TENDER; EXHIBITING TO THE TOUCH A FEELING OF NUMEROUS IRREGULAR PROMINENCES UNDER THE SKIN; FEVER, A HECTIC: OCCURRING CHIEFLY DURING THE SECOND OR THIRD WEEK FROM CHILD-BIRTH.

GEN. XI. SPEC. I. Natural connexion of this species with the ensuing.

I HAVE observed above, that the tumid-leg of child-birth has mostly been contemplated as a very different affection from that of hot climates, and has rarely been treated of in connexion with it. Dr. Thomas, however, has been sensible of their relation, though he has still placed them at a distance from each other. "The disease," says he, "to which in my opinion it bears the strongest resemblance, (meaning the species before us,) is the glandular affection so frequently met with in the island of Barbadoes*." It is singular that, with this impression, so able a writer should still have regarded the latter as a species of elephantiasis, and arranged and described it accordingly. In the present author's first edition of his Nosology the ordinary arrangement was so far yielded to as to place the two species remotely, though a distinction between elephantiasis and the tumid-leg was strongly enforced.

Synonyms.

The tumid-leg of lying-in-women has been described by different authors under a variety of names, as phle-

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* Modern Practice of Physic. Diseases of the Puerperal State.

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gmatia *dolens*, phlegmatia *lactea*, ecchymoma *lymphatica*, and by Dr. Cullen, as anasarca *serosa*; few of which express the real nature of the affection, and some of them a source obviously erroneous.

Derivation of the specific term.

By Dioscorides it was denominated sparganosis, from *σπαργάω*, "to tumefy and distend;" *tumeo et distentus sum*, as rendered by Scapula; and, as the term is sufficiently expressive, it has been preferred on the present occasion to any of the rest; and appropriated to the present disease, instead of being made common, as Dioscorides has made it, to numerous other affections of the chest.

Causes misunderstood and doubtful.

By Dioscorides, and most writers till within the last twenty or thirty years, the swelling has been ascribed to a redundancy of milk, and a morbid deposition in consequence of such redundancy; whence the French practitioners call it to the present day, after Puzos, depot *laitèux*, or lait *répandu*; and the Germans milchstreichen. A minuter attention to the subject, however, has sufficiently shown that this complaint has seldom any connexion with the milk: perhaps never. It has occurred where the breasts have been destitute of milk, and where they have overflowed; where suckling has been relinquished, and where it has been continued. It is but very lately I was consulted by a young woman labouring under it, who was suckling her infant without any complaint of the breast whatever.

It is as little influenced by the state of the lochia as by that of the milk. It attacks women of all ranks and of all habits; the healthy and the diseased; the lean and the corpulent; the sedentary and the active; the young and the middle-aged. It also occurs at all seasons and situations; and has never been known to appear in any other part of the body than the lower extremities.

Description.

In about twelve or fourteen days after delivery the patient complains of pain in the groin of one side, accompanied with the general train of pyrectic symptoms, but without the precursive shivering. The part affected soon becomes swelled and distended, the

GEN. XI. SPEC. I. Bucnemia Sparganosis. Puerperal tumid-leg.

swelling extending to the labia pudendi of the same side, and down the inside of the thigh to the leg and foot; in a day or two the limb is double its natural size, is hot, exquisitely tender, and moved with great difficulty. It has not, however, the ordinary external signs of inflammation, but is hard, smooth, glabrous, pale, and equable, except where the conglobate glands are situate, which are corded and knotty, as in the groin, the ham, and the back and fleshy part of the leg. There is, occasionally, an uneasiness in the loins and in the region of the pubes on the same side. The swelling has sometimes appeared as early as twenty-four hours after delivery, and sometimes not till five weeks afterwards. The accompanying fever, which is of a hectic form, usually declines about the fourteenth or twenty-first day, but in some cases runs on for six or eight weeks, and the patient becomes greatly emaciated. The first appearance of improvement takes place where the disease commenced, about the groin, the pain and tumor gradually subsiding in this quarter, and the amendment spreading in a continuous line. Sometimes, though rarely, both sides are affected simultaneously, and, in a few instances, the sound leg has exhibited something, though a less degree, of the same complaint, as the diseased leg has amended. The amendment is very slow; and, in many cases, the affected limb continues weak and of a morbid enlargement through life.

Proximate cause probably a morbid affection of the lymphatics of the affected limb; but this affection differently explained.

The latest and best writers upon the subject, Mr. White, Mr. Trye, Dr. Ferriar, and Dr. Hull, concur in deriving the disease from some affection of the lymphatics of the distended side, though they differ as to the nature of such affection. Mr. White supposes it to be an extravasation from the lymphatic vessels ruptured by the pressure of the child's head against the brim of the pelvis during a severe labour-pain, the extravasated fluid not being duly absorbed. Mr. Trye refers it to inflammation of the lymphatic glands; Dr. Ferriar to inflammation of the side affected generally; and Dr. Hull to lymphatic inflammation and an effusion of coagulable lymph, instead of an effusion of the proper fluid of the lymphatics, by a rupture of their coats. The last, if not the real cause, is the most plausible thus far offered. The lymphatics are capable of being strained and weakened during the progress of labour, and the inflammation may follow from undue distention in consequence of such injury: but were the lymphatics to be ruptured during labour the disease would probably show itself much sooner than the second or third week after delivery. There is, however, another way of accounting for this inflammatory affection of the lymphatics of the lower limb, and which, upon the whole, I cannot but think is its real source. It is that of supposing an habitual debility in the lymphatics affected, and inflammation produced in them, from what Mr. Hunter calls, though with some looseness of expression, the stimulus of relaxation: in other words, from the weakly lymphatics, now destitute of the surrounding pressure and stimulus which they possessed during pregnancy, yielding too easily to the flow of the fluid they have to convey, and on this account becoming morbidly distended, and inflamed in consequence of such distension. And we may hence see why sparganosis *puerperarum* occurs in no other limb or part of the body than the lower extremities.

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Another mode of accounting for it.

The lymphatics affected probably habitually weak and inelastic; and hence inflammation from the stimulus of relaxation.

It is not to be wondered at that the effused fluid should exhibit a thick, glutinous, and even milky appearance: for we have had frequent occasions of noticing a somewhat similar secretion in the case of inflamed membranes, and even in inflammation of the heart itself; and, at the time we are contemplating, there is a general tendency in the constitution to produce genuine milk, and often in great abundance. Nothing can be more unlike than this complaint and dropsy, or than the effused fluid and serum: and hence Dr. Cullen seems not less improperly to reckon sparganosis *puerperarum*, a modification of anasarca (anasarca *serosa*), than those who have regarded it as a variety of milk-affection. Serous dropsy of the lower extremities occurs

Whence the milky and glutinous appearance of the effusion.

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unquestionably at times after labour, but its symptoms and appearance are altogether different.

Hypothesis of Denman.

There is apparently as little reason for the hypothesis of Dr. Denman, who, while regarding it as an inflammation of the lymphatics, refers the inflammation to an absorption of some acrimonious matter secreted by the uterus: for the disease has occurred where there has been no more morbid action of the uterus than of the mammæ; and all the secretions have proceeded healthily and in their proper quantity.

Curative plan.

The cure is to be attempted first by leeches applied down the course of the limb, poppy-head fomentations, and alvine evacuants: and afterwards, as soon as the inflammatory symptoms have a little subsided, by local stimulants, so as to excite the torpid absorbents to increased action: of which the most useful in the author's hands has been the volatile liniment with laudanum.

Volatile liniment with laudanum.

The laudanum, on a cursory view, may seem to add to the vascular torpor: but it tends to take off the pain and irritation that still remains, and thus enables the tranquillized vessels the more easily to recover their tone. Yet whatever application of this kind is employed, it should be accompanied with gentle friction, continued for half an hour or more, as the limb is able to bear it: for the friction itself is of essential service, and tends, perhaps even more than any other local stimulant, to restore the limb to a healthy action.

Gentle friction.

Mercury.

Mr. Trye advises, for the same purpose, the use of mercurial ointment; and others, that of small doses of calomel. But neither have proved decidedly useful; while in some instances of great debility, they have evidently produced mischief. The chronic weakness is to be removed by a continuance of the friction, bathing with sea-water, or, which is much better, bathing in the sea itself, an elastic flannel bandage, horse exercise, pure air, and, if necessary, general tonics and astringents.

Chronic weakness how to be removed.

SPECIES II.

BUCNEMIA TROPICA.

Tumid-Leg of Hot Climates.

THE TUMID LIMB HARD, LIVID, AND ENORMOUSLY MIS-SHAPEN: SKIN AT FIRST GLABROUS, AFTERWARDS THICK, SCALY, AND WARTED: SUCCESSIVELY BULGING AND INDENTED: OCCURRING CHIEFLY IN TROPICAL CLIMATES.

Gen. XI.
Spec. II.
Barbadoes-leg here intended.

THIS species is intended to comprize that singular disease, known in the West Indies, and generally over Europe, by the name of *Barbadoes-leg*, from its being indigenous to the island of Barbadoes. Yet it is not in Barbadoes alone that it makes its appearance: for it is of high antiquity, as well as of very wide range in hot, and especially in tropical climates; and constitutes the genuine DAL-FIL (داء آلفيل) or elephant leg of the Arabians, being so denominated from its livid, tumefied, scaly, mis-shapen appearance. As the Arabic dal or daul-fil (داء آلفيل) is literally elephantiasis or elephant-leg, and as the Greeks distinguished another and very different disease by the name of elephantiasis, the Greek translators of the Arabian writers were very generally betrayed, from the unity of the name, into a confusion of the two disorders, as we shall have occasion still further to observe when treating of proper ELEPHANTIASIS under the fourth order of the present class: and the confusion has, in a considerable degree, descended to our own times, insomuch that many writers of the present day continue to jumble the elephantiasis, or elephant-*leg*, of the Arabians, with the elephantiasis, or elephant-*skin*, of the Greeks, and to describe them as a common affection, though no two complaints can be more unlike: the former being a mere local malady, produced acci-

Often confounded with elephantiasis: and whence.

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dentally, and confined to the individual who labours under it; and the latter a constitutional disease, in every quarter hereditary, and in most quarters contagious.

Sometimes confonuded with leprosy: and whence.

The Arabians, however, had the disease called elephant-skin, the elephantiasis of the Greeks, by themselves called juzam (جزام) as well as the dal-fil or elephant-leg, the disease before us. And, as the malady called leprosy, and by the Arabians beras (برص), was supposed by many physicians, as well Arabian as Greek, to terminate frequently in juzam, or proper elephantiasis, the disease before us has occasionally also been confounded with leprosy as well as with elephant-skin, and all the three affections have been huddled together by many writers into one common disease. Even Dr. Schilling, a late practitioner of considerable merit at Surinam, has not escaped this last error; for

Illustrated.

he describes the tumid-leg under the name of leprosy; confuses its earliest symptoms and appearance with those of the leprosy of the Greeks, and especially with those of the lepra or lepriasis *canescens*, and then distinguishes elephantiasis, the disorder he professes to be the immediate subject of his pen, as a peculiar branch of leprosy, merely varied by its commencing in the feet, instead of in any other part of the body: and, carrying on the confusion, he next interprets the tumid-leg, or disease before us, as a mere variety of elephantiasis *.

Summary of Schilling's description.

A summary of Dr. Schilling's publication is given in the Edinburgh Medical Commentaries, and even the learned editors themselves seem to have adopted his views: for the following is their explanation of the general subject before us: "In some instances of this disorder (leprosy), the feet are the parts chiefly affected, and then the complaint has been termed elephantiasis, not only from the resemblance of the diseased feet to those of the elephant, but from the walk of such patients resembling exactly the step of that animal. In this spe-

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* G. G. Schillingii de Leprâ Commentationes, 8vo. Lugd. Bat. 1776.

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cies of the complaint the skin and other soft parts become wonderfully expanded, at the same time that the different small bones swell considerably. The toes become thick, and at last melt down, and run together as if made of wax. The slightest affection of the diseased parts occasions a discharge of blood, which, however, is commonly easily put a stop to. The disorder by degrees spreads from the toes over the whole foot, and thence proceeds to the femur, rendering the different articulations in its course stiff and immoveable: at the same time that, in many instances, the muscles and tendons concrete so firmly together that the most skilful anatomist can neither separate nor distinguish them without great difficulty *." Dr. Schilling adds, that notwithstanding the frequency of this disorder in some of the West India islands, and in some parts of the continent of America, he is clearly of opinion it is not a disease of those climates, but was introduced, and continues to be supported there by an importation of negro slaves from the coast of Africa.

More correct view of Hillary and Hendy.

For a distinct and more correct account of this species, we must turn to the writings of Dr. Hillary † and Dr. Hendy, who have judiciously separated it from both the leprosy and the elephantiasis of the Greek writers, and treated of it as an individual malady: the former under the name of "Barbadoes leg," and the latter under that of the "Glandular disease of Barbadoes." It is singular however that Dr. Hendy should have adopted the erroneous idea that the disease before us is not only endemial to Barbadoes, but that it is to be found no where else; and that patients who migrate from this island for a cure, are almost sure to obtain one, unless in a chronic or inveterate stage of the disease, to whatever quarter they direct their course. It has been known immemorially in India, and is by the oriental writers, and even by Sir William Jones, justly distinguished from the *juzam*, which he tells us must not

Error of Hendy in limiting the disease to Barbadoes.

Known in India as well as in Arabia.

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* Edin. Med. Comm. Vol. v. p. 264.

† Works, Vol. I. p. 549. 4to edit. 1799.

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be confounded with the *dal fil*, or swelled legs described by the Arabian physicians, and very common in that country. It is also indigenous to the Polynesian isles, where it takes the name of yava-skin, as being supposed to originate from drinking the heating beverage called yava; and, like the gout among ourselves, is regarded in a sort of honourable light.

Known in Polynesia.

Description.

The tropical bucnemia, like the puerperal, is occasioned by an effusion of coagulable lymph into the cellular membrane under the skin of the part affected, in consequence of inflammation of the lymphatics of the lower limb, and especially of the inguinal glands; the cause of which is perhaps different in different cases, but which is most commonly cold, operating upon a set of vessels peculiarly irritable, and especially so when affected with inflammation in tropical climates. The blood-vessels, and particularly those of the surface, are here also greatly relaxed; and hence the skin, instead of maintaining the paleness of the first species, very soon becomes suffused with a deep red or purple hue; while the saburral fluid, that exudes from the cutaneous exhalents, concretes, as its finer parts fly off, into rough and sordid scales, and the skin itself becomes enormously thickened and coriaceous.

Preceded by a febrile paroxysm: subject to irregular returns.

The effusion is usually preceded by a febrile paroxysm induced by the glandular inflammation just noticed; and which, from the first, discovers a tendency to recur, though often at irregular periods, so as to resemble an erratic intermittent. Every fresh attack adds considerably to the effusion, and consequently to the morbid size of the limb, and exacerbates every symptom: and hence the greater severity of this species than of the former, and the monstrous disfigurement of the leg and foot by which it is distinguished. In many instances also the inflammation extends to the surrounding as well as to the descending parts; and hence the scrotum, like the pubes in puerperal bucnemia, is often peculiarly affected and distended to an enormous magnitude; while occasionally the glands of the axilla participate with those of the groin, and the fore-arm becomes also enlarged. In a few instances the disease is said to have commenced in the axilla; but such cases are very rare, and not well established.

Hence the disease becomes chronic.

In this manner the disease at length assumes a chronic character: the monstrous size and bloated wrinkles of the leg are rendered permanent; the pain felt acutely at first subsides gradually, and the brawny skin is altogether insensible. Yet even from the first, except during the recurrence of the febrile paroxysms, the patient's constitution and general functions are little disturbed: and he sometimes lives to an advanced age, incommoded only by carrying about such a troublesome load of leg; which, however, as we have noticed already, is regarded in the Polynesian isles as a badge of honour.

Rarely met with in Europe.

In our own country the disease is rarely met with but in its confirmed and inveterate state, after repeated attacks of the fever and effusion have completely altered the organization of the integuments and rendered the limb altogether incurable. In this state the distended skin is hard, firm, and peculiarly thickened, and even horny; while the muscles, tendons, ligaments, and bones, are, for the most part, little affected.

Mode of treatment.

In this advanced stage, the disease seems to be altogether hopeless: nor in any stage has the practice hitherto pursued been productive of striking success. This has consisted chiefly in endeavours to alleviate the febrile paroxysms by laxatives and diaphoretics, and subsequently to strengthen the system by the bark. It would be better perhaps by active and repeated bleedings, as well general as local, and powerful purgatives, to endeavour to carry off the whole of the first effusion as quickly as possible; and then to direct our attention to a prevention of the paroxysms to which the constitution appears to be peculiarly subject, after a single one has taken place, by prohibiting exposure to the damp air of the evening, and by the use of tonics.

Case occurring in England singularly cured.

An original and chronic affection of this kind, in which the integuments of the legs were much thickened, the limbs swelled to such an extent as to prevent the patient

Gen. XI. Spec. II. Bucnemia tropica. Tumid-leg of hot climates. Treatment.

from walking, and incrusted with such a vast quantity of brawny scurf and scales, that handfuls of them might be taken out of his bed every morning, was successfully attacked many years ago by a mistake of one plant for another. The case is related by Dr. Pulteney in a letter to Dr. Watson; and the patient, who had been recommended to swallow a table spoonful of the juice of the water-parsnep, with two spoonfuls of wine every morning fasting, was erroneously supplied with half a pint of what afterwards appeared to be the juice of the roots of the hemlock-dropwort (oenanthe *crocata*, Lin.): the first dose produced such a degree of vertigo, sickness, vomiting, cold sweats, and long continued rigor, that it almost proved fatal. So strong, however, was the patient's desire of relief, that, with the intermission of one day, he repeated the dose with a slight diminution in the quantity. The effects were still violent, though somewhat less alarming; and he persisted in using half the quantity for several weeks. At the end of a month he was very greatly improved, and shortly afterwards the whole of his symptoms had nearly left him [*].

Amputation of no use.

Amputation of the affected leg has sometimes been made trial of, but apparently without any success. Dr. Schilling informs us, that in some a locked jaw takes place about the seventh day from the operation, which is soon followed by tetanus, and ends in death; that in others, fatal convulsions ensue immediately; and that those who survive the operation have wounds hereby produced that will not heal; while the disorder, still tainting the constitution, often seizes on the other foot [†]. And in this last assertion he is corroborated by one or two cases related by Dr. Hendy [‡].

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[*] Phil. Trans. Vol. LXII.

[†] G. G. Schillingii de Leprâ Commentationes, 8vo. Lugd. Batav. 1776.

[‡] On the Glandular Disease of Barbadoes.

GENUS XII.

ARTHROSIA.

Articular Inflammation.

INFLAMMATION MOSTLY CONFINED TO THE JOINTS; SEVERELY PAINFUL; OCCASIONALLY EXTENDING TO THE SURROUNDING MUSCLES.

Gen. XII. Origin of the generic term.

Arthrosia is a term derived from ἀρθρόω, "to articulate," whence arthrosis, arthritis, and many other medical derivations. The usual term for the present genus of diseases, among the Greek physicians, was *arthritis*, which would have been continued without any change, but that, for the sake of simplicity and regularity, the author has been anxious to restrain the termination *itis* to the different species of the genus EMPRESMA that have just passed in review before us; whence arthrosia is employed instead of arthritis, and precisely in its original extent of meaning.

Loosely used by earlier writers.

Arthritis then, among the Greeks, was used in a generic sense, so as to include articular inflammations generally. But as almost every sort of articular inflammation has, in recent times, been advanced to the rank of a distinct genus in itself, it has frequently become a question to which of them the old generic term should be peculiarly restrained. And hence, some writers have applied and limited it to gout; others have made it embrace both gout and rheumatism; others again have appropriated it to white-swelling: while a fourth class of writers, in order to avoid all obscurity and dispute, have banished the term altogether.

Gen. XII. Arthrosia. Articular inflammation.

What species it should embrace: connexion of gout and rheumatism.

Now gout, rheumatism, whether acute or chronic, and white-swelling, however they may differ in various points, as well of symptoms as of treatment, have striking characters that seem naturally to unite them into one common group. Gout and rheumatism are so nearly allied, in their more perfect forms, as to be distinguished with considerable difficulty; and, in many instances, rather by the collateral circumstances of temperament, period of life, obvious or unobvious cause, antecedent affection or health of the digestive function, than from the actual symptoms themselves. Stoll maintains that they are only varieties * of the same disease: Bergius, that they are convertible affections. White-swelling, in one of its varieties, is now uniformly regarded as a sequel of rheumatism, or the result of a rheumatic diathesis; while the other variety cannot be separated from the species. All these, therefore, naturally and necessarily form one common genus, and are correctly so arranged by Dr. Parr.

White-swelling how connected with the above.

Whether gout and rheumatism ever co-exist.

From the close connection between gout and rheumatism, Sauvages, and various other nosologists, distinguish some of the cases of disguised gout by the name of *rheumatic gout*. Mr. Hunter warmly opposed this compound appellation; for his doctrine was, that no two distinct diseases, or even diseased diatheses, can co-exist in the same constitution. And, as a common law of nature, the observation is, I believe, strictly correct; one of the most frequent examples of which is the suspension of phthisis during the irritation of pregnancy. But it is a law subject to many exceptions; for we shall have occasion, as we proceed, to notice the co-existence of measles and small-pox; and I have at this moment under my care a lady in her forty-ninth year, of delicate health and gouty diathesis, who is labouring under a severe and decisive fit of gout in the foot, which is prodigiously tumefied and inflamed, and has been so for several days,

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* Rat. Med. Part III. p. 122—137. v. p. 420.

Gen. XII. Arthrosia. Articular inflammation.

brought on by a violent attack of lumbago, to which she is still a victim, and which renders her nights more especially sleepless and highly painful. The constitutional disease has in this case been roused into action by the superadded irritation of the accidental disease; and the two are now running their course conjointly. It is also a striking fact that one of the severest illnesses that attacked Mr. Hunter's own person, and which ultimately proved to be disguised gout, podagra *larvata*, he suspected, in its onset, to be a rheumatic ailment. The case, as given by Sir Everard Home, in his Life of Mr. Hunter, is highly interesting and curious; as showing the singular forms which this morbid Proteus sometimes affects, and the various seats it occupies; as also that a life of temperance and activity is no certain security against its attack: for Mr. Hunter had, at this time, drunk no wine for four or five years, and allowed himself but little sleep at night.

Arthrosia, therefore, as a genus, may, I think, be fairly allowed to embrace the following species:—

1.	ARTHROSIA ACUTA.	ACUTE RHEUMATISM.
2.	——— CHRONICA.	CHRONIC RHEUMATISM.
3.	——— PODAGRA.	GOUT.
4.	——— HYDARTHRUS.	WHITE-SWELLING.

SPECIES I.

ARTHROSIA ACUTA.

Acute Rheumatism.

PAIN, INFLAMMATION, AND FULNESS USUALLY ABOUT THE LARGER JOINTS AND SURROUNDING MUSCLES; OFTEN WANDERING; URINE DEPOSITING A LATERITIOUS SEDIMENT; FEVER A CAUMA.

Gen. XII. Spec. I.

The disease varies in respect to violence of the fever, and seat of the pain. The varieties, determined mostly from the last feature, are as follow:

α Artuum. Articular rheumatism.	Pain felt chiefly in the joints and muscles of the extremities.
ϐ Lumborum. Lumbago.	Pain felt chiefly in the loins; and mostly shooting upwards.
γ Coxendicis. Sciatica.	Pain felt chiefly in the hip-joint, producing emaciation of the nates on the side affected, or an elongation of the limb.
δ Thoracis. Spurious pleurisy.	Pain felt chiefly in the muscles of the diaphragm, often producing pleurisy of the diaphragm.

α A. acuta artuum. Articular rheumatism.

Remote cause.

Ages and constitutions chiefly predisposed to rheumatism.

The common remote cause of articular rheumatism, as of all the other varieties, is cold or damp applied when the body is heated; though it may possibly be produced by any other cause of inflammatory fever, where the constitution has a peculiar tendency to a rheumatic action. This tendency or diathesis seems to exist chiefly in the strong, the young, and the active;

for, though it may attack persons of every age and habit, these are principally its victims. We may hence, as well as from its symptoms, prove rheumatism to be an inflammatory disease. Even in the weak and emaciated, observes Dr. Parr, the pulse is hard, the blood coriaceous, and bleeding often indispensable. It is an inflammatory disease, also, of the muscles, for motion is painful, the muscles are sore to the touch; and we may assume it as a position that muscular organs are alone affected *. The chief pain, indeed, is usually felt in the joints; for the more closely compacted organs, or parts of organs, though insensible in a sound state, are peculiarly alive to pain when diseased; the same arteries belong to both the muscles and tendons of the affected organ; and in the latter we have reason to expect the pain to be more violent as they admit of distension with greater difficulty. How far the observation of Sir C. Wintringham is true, that those who have suffered amputation are susceptible of this disease more than others †, the author cannot say from his own practice; but it is the remark of a physician who was not accustomed to form a hasty judgment.

An inflammatory disease; most probably of the vessels of the muscles.

Amputation said to predispose to the disease.

As a general rule it may be asserted that rheumatic inflammation does not tend to suppuration. In a few rare instances the contrary has been known to take place ‡; and in one or two cases I have myself been a witness to an extensive abscess. But the general rule is not disturbed by such rare exceptions. The inflammation therefore is of a peculiar kind. There will often, indeed, be effusion, and the limb will swell considerably; but the effused fluid is gradually absorbed; and the swelling not unfrequently, though not always, is accompanied with an alleviation of the pain.

Does not tend to suppuration.

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* Smyth, Med. Commun. II. 19.

† Comment. de Morbis quibusdam. Art. 79.

‡ Morgagni, De Sed. et Caus. Morb. Ep. LVII. Art. 20. Med. Comment. Edinb. Vol. IV. p. 198.

Gen. XII. Spec. I. α A. acuta artuum. Articular rheumatism.

Description.

Sometimes the pains take the precedency of the fever; but in other cases the fever appears first, and the local affection does not discover itself till a few days afterwards. There is no joint, except perhaps the extreme and minute joint of the fingers and toes, but is susceptible of its attack, although it usually commences in, as already observed, and even confines itself to, the larger. Among these, however, it frequently wanders most capriciously, passing rapidly from the shoulders to the elbows, wrists, loins, hips, knees, or ancles, without observing any order, or enabling us in any way to prognosticate its course; always enlarging the part on which it alights, and rendering it peculiarly tender to the touch. Sometimes it darts internally upon organs we should little expect, as the diaphragm and the pleura; and I have occasionally known the stomach as suddenly and severely affected as in gout. It is also said at times to pitch upon the heart and the intestinal canal, and to produce excruciating torture in both these organs. The urine is often at first pale, but soon becomes high-coloured, and deposits a red sediment. It may be distinguished from gout by being little connected with dyspepsy, commencing less suddenly, evincing more regularly marked exacerbations at night; but less clear remissions at any time: to which, as already noticed, we may add its attachment to the larger rather than the smaller joints. It runs on from a fortnight to three weeks: and the average of the pulse is rarely under a hundred.

Nature of the accompanying sweats.

The fever is generally accompanied with copious and clammy sweats; but the skin still feels tense and harsh; nor does the sweat issue freely from the immediate seat of pain. It seems to be an ineffectual effort of the instinctive principle or remedial power of nature to carry off the complaint: for it is by this evacuation alone that we can at length succeed in effecting a cure. But the perspiration will be always found unavailing so long as it continues clammy, and the skin feels harsh, and there is a sense of chilliness creeping over the body or any

GEN. XII. SPEC. I. α A. acuta artuum. Articular rheumatism.

part of it during the perspirable stage. The exacerbation, which regularly returns in the evening, increases during the night, at which time the pains become most severe; and are then chiefly disposed to shift from one joint to another.

Remedial process. Copious bleeding,

Where the fever is violent, and especially where the frame is robust; our only effectual remedies are copious bleeding and the use of diaphoretics; by the former, which will often demand repetition, we take off the inflammatory diathesis, and by the latter we follow up the indication which nature herself seems to point out, and endeavour by still farther relaxing the extremities of the capillaries to render that effectual, which without such collateral assistance is, as already observed, for the most part exerted in vain, and an unprofitable expenditure of strength. The most useful diaphoretic we are acquainted with is Dover's powder; and its benefit will often be increased if employed in union with the acetated ammonia, and sometimes if combined with camphor. Aperients are useful to a certain extent, but they have not been found so serviceable as in various other inflammations. Small doses of calomel have occasionally, however, seemed to shorten the term of the disease, though they have not much influence in diminishing the pain. To obtain this Dr. Hamilton has combined calomel with opium; and in his hands it appears to have been successful. Opium alone is rather injurious; nor has any decided benefit resulted from other narcotics, as hyoscyamus, hemlock, and aconite. They are recommended by several writers, but I have seen them tried both in small and large quantities without effect.

and diaphoretics.

Aperients often little serviceable.

Opium alone seldom useful.

Venesection sometimes injudicious;

We have observed that there is no constitution invulnerable to the attack of rheumatism, although the young and the vigorous fall most frequently a prey to its torture. Hence not unfrequently we meet with it in persons of weak and irritable habits, who will not bear the lancet with that freedom which gives any chance of its being useful. Local bleeding is here to be preferred; but it cannot be depended upon: since, though the pain may

and local bleeding not to be depended upon.

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diminish, or even totally subside, it is, in many cases, only to make its appearance in some other quarter. Here, also, if in any case, we have reason to expect benefit from uniting stimulants with diaphoretics, as ammonia, camphor, and the resinous gums and balsams.

Rhododendron, often useful;

In such habits, and particularly if opium should disagree with the system, it may be worth while to try the rhododendron (r. *Chrysanthum* Linn.). This plant is a native of the snowy summits of the Alps and mountains of Siberia; and in Russia, as we learn from Dr. Guthrie, is employed very generally both in gout and rheumatism with a full assurance of success, a cure seldom failing to be effected after three or four doses*: in consequence of which it has formed an article in the Materia Medica of the Russian Pharmacopœia for nearly a century. Dr. Home tried it upon a pretty extensive scale in the Edinburgh Infirmary, and found that it acts both as a powerful diaphoretic and narcotic; and is at the same time one of the most effective sedatives in the vegetable kingdom. In most of the cases it retarded the pulse very considerably, and in one instance reduced it to thirty-eight strokes in a minute. It has also the advantage of occasionally proving aperient. But it sometimes produces vertigo and nausea; and as a general medicine is not to be preferred to Dover's powder†, or even the antimonial powder with opium, where the latter can be born without inconvenience.

but not to be preferred to Dover's powder.

Free use of bark in debilitated habits; often advised indiscriminately.

It is possibly also in habits of this irritable kind, if in any, that we are to look for that extraordinary and decisive benefit from a free use of the bark at an early period of the disease, which we are told has accompanied it, by authorities which we cannot dispute. Contemplated as a highly acute inflammatory affection, nothing could at first sight appear to be more inconsistent with all rational practice than the use of such a medicine, and every one α A. acuta artuum. Articular rheumatism. Diversity of opinions of high authority. Of Cullen. Of Morton. Hulse. Fothergill. Fordyce.

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* Med. Comment. Vol. v. p. 434.

† Clinical Experiments, Histories of Dissections, 8vo. Edin. 1780.

must feel predisposed to coincide with Dr. Cullen, when he tells us, in reference to acute rheumatism, "I hold the bark to be absolutely improper, and have found it to be manifestly hurtful, especially in its beginning, and in its truly inflammatory state." Yet in direct opposition to such feelings and such assertion, confirmed by numberless testimonies of equal weight, we find the bark freely prescribed from the onset of acute rheumatism, apparently with success, by Dr. Morton, who seems first to have employed and recommended it for this purpose, down to our own day, through a stream of the most celebrated physicians, as Sir Edward Hulse, Dr. Fothergill, Dr. George Fordyce, and Dr. Haygarth of Chester. Dr. Fordyce affirms distinctly that, at the time of writing, he had for fifteen years relinquished bleeding in favour of the bark; and that during this period of time he had not above two or three patients out of several hundreds for which he had prescribed it; and had rarely met with any instance of a metastasis, a very common occurrence when he was in the habit of employing copious bleeding†.

Haygarth.

The success of Dr. Haygarth is not less striking and extraordinary: and the history of it is given with an air of candour that entitles it to full attention. Dr. Haygarth's residence was at Chester; and his tract lays before us, the result of an extensive practice in rheumatic diseases, in that city and its neighbourhood, during a period of thirty-eight years. His cases amount to four hundred and seventy; and of these, one hundred and seventy, or something more than a third of the entire number, appear to have been cases of acute rheumatism, or rheumatism in conjunction with fever, the rest being of a chronic kind. In the acute cases, by far the greater number of patients had the joints alone principally affected, a few the muscles alone, and the rest both the muscles and the joints. The average of the pulse in the above hundred and seventy cases, was a hundred strokes

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[*] Mat. Med. Part II. Ch. II. p. 100.

[†] On Fever, Dissert. III.

Gen. XII. Spec. I. α A. acuta artuum. Articular rheumatism.

in a minute, and the blood always exhibited the inflammatory crust when drawn. Other remedies were tried, but the bark was by far the most successful. In four cases only out of a hundred and twenty one, it is allowed to have failed; so that we cannot be much surprised at Dr. Haygarth's conclusion, that the bark does not cure an ague so certainly and so quickly as it does the acute rheumatism*.

Attempt to reconcile these conflicting testimonies.

How are we to reconcile such conflicting results, and harmonize the authorities now adverted to? I have also tried the bark in various instances from an early period of the disease, and when the bowels were free from confinement, but I have rarely met with success: and have often, like Dr. Cullen, had reason to think it injurious. Is it that in certain habits, as those of great weakness and irritability; in certain districts, as in low and swampy grounds, charged with the fomites of intermittents; or, in certain temperaments of the atmosphere, as in sudden successions of wet and sultry weather, the bark has a tendency even in acute rheumatism, as we know it has in spasmodic affections occurring in weakly constitutions, to take off tension and rigidity as well as to take off relaxation; and thus to induce a healthy tone by letting down the action of muscular fibres, when necessary, as well as raising it when necessary also? This view of the subject may account for its beneficial effects in many of the above cases, but will not explain the general and indiscriminate success which seems to have attended it: and hence, there is still a something behind, some unknown principle or contingency, which yet requires to be brought forward before we can reconcile these "factis contraria facta."

Local varieties of acute rheumatism.

The above remarks will apply to other varieties of acute rheumatism as well as to the first, that which affects the joints generally, and is the most common form under which the disease shows itself; yet the few

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* Clinical History of Diseases, 1805.

Gen. XII.
Spec. I.

following observations more immediately directed to the other varieties may not be altogether unprofitable.

β A. acuta lumborum.
Lumbago.

Lumbago has sometimes been confounded with nephritis, or a calculus in the kidneys or ureters; but the proper nephritic affections are distinguished by some irregularity in the secretion of urine, and, as we have already had occasion to observe, with a numbness shooting down the thigh, and a retraction of either testicle.

γ A. acuta coxendicis.
Sciatica.

Rheumatism of the hip-joint was called among the Latins *ischias*, from ἰσχίος, the Greek term for hip; which was afterwards corrupted into isciatica or sciatica, a word that has occasionally found its way into the dramatic poetry of our own country, as in Shakspeare's Timon,

> The cold sciatica
> Cripple our senators that their limbs may halt
> As lamely as their manners.

This variety, at its onset, has sometimes been mistaken for a phlegmonous inflammation of the psoas muscle. But in the latter there is, from the first, less tenderness to the touch, but much more enlargement, and the pain shoots higher into the loins. In sciatica, indeed, the whole limb, instead of continuing to swell, soon wastes away, and the emaciation extends to the nates of the affected side, so that the muscles have neither strength nor substance; while the thigh becomes elongated from the fibrous relaxation that takes place.

δ A. acuta thoracis.
Spurious pleurisy.

When acute rheumatism attacks the pleura, or any of its duplicatures or appendages, it exhibits many of the symptoms of pleurisy or peripneumony. But here, also, as in every other case of rheumatism, we have much greater tenderness upon pressure than in phlogotic inflammation, while the pyrectic symptoms are considerably less, and often highly disproportionate to the pain that is endured, so that the degree of pain and of fever becomes no measure for each other.

There is this peculiar character belonging to the three last varieties, that though they are less disposed to

GEN. XII. SPEC. I. ꝺ A. acuta thoracis. Spurious pleurisy. Peculiar character belonging to the local varieties.

wander *generally* than the first, they are peculiary apt to run into each other's proper field, and to affect the stomach, which, in consequence, becomes sometimes enormously flatulent and expanded, with a sense of heat like that of a burning coal. If the back or loins be pressed hard to obtain ease, the pain is transferred to the side or stomach; and if the pressure be followed up into the side, it returns with violence to the back or hips; or the breathing is impeded, and can only be carried on in an erect position*.

Local varieties of acute rheumatism more disposed to chronic weakness.

Generally speaking however, in these three varieties, the disease is less erratic than in the first, and particularly in lumbago and sciatica. And it is owing to this fact, that the loins and the hip, from having been more uniformly affected, are often so long, even after the complaint has subsided, before they recover any degree of tone, so that the patient is frequently a cripple for many months; and still suffers from chronic rheumatism, which in these cases proves no uncommon sequel to acute.

Treatment of the local varieties.

Local applications, which are rarely of service in the first or articular variety, as the pain is so apt to wander from every joint to every joint, may in all these be frequently employed with more advantage; and where general and copious bleeding may be contraindicated, leeches or cupping have often afforded considerable relief. The compound camphor liniment, as an elegant rubefacient, is perhaps more frequently employed than any other medicine of the same tribe; but it dries too soon upon the skin, and heats and stimulates without exciting moisture; and hence it is less useful than camphor dissolved in oil, or oil united with ammonia. In all these applications, however, the friction with a warm hand is of itself highly serviceable, and should be long persevered in and frequently repeated. And on this account it is that essential advantage has often been derived in cases of lumbago, or where the rheumatism has fixt itself

Rubefacients.

Friction.

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* Cartheuser Diss. de Lumbagine rheumatica. Fr. 1755.
Scheid, Diss. de Lumbag. rheumat. Arg. 1704.

Gen. XII. Spec. I. Arthrosia acuta. Acute rheumatism.

between the shoulders, by a waistcoat of the coarsest brown paper, worn close to the skin, which excites a gentle moisture, both by its perpetual friction and the stimulus of the tar with which it is so largely impregnated.

Treatment. Blisters rarely very serviceable.

Blisters seem rarely to be of all the advantage we should expect; but the vesication from sinapisms succeeds better than that from cantharides, probably because it operates with a wider continuous sympathy, produces more general excitement, and hence proves a better diaphoretic. The burning of moxa is a favourite remedy on the continent, but has been little tried in our own country. It does not seem to afford so much promise of relief as sinapisms or epithems of scraped horse-radish. The tartar emetic ointment has been also frequently made use of, and sometimes with success: it gives a permanent irritation, but the exulcerations it produces frequently prove foul and troublesome. Dr. Perceval of Dublin, in a manuscript note to the volume of Nosology, tells me that, in sciatica, he has known the pain removed by a sweating course of James's powder, after a considerable emaciation of the nates.

Moxa.

Tartar emetic ointment.

Bark and gentle stimulants, as guaiacum, bardana, and seneka, may in every instance be used with advantage, with a liberal regimen and chalybeate waters.

SPECIES II.

ARTHROSIA CHRONICA.

Chronic Rheumatism.

PAIN, WEAKNESS, AND RIGIDITY OF THE LARGER JOINTS AND SURROUNDING MUSCLES; INCREASED BY MOTION; RELIEVED BY WARMTH; LIMBS SPONTANEOUSLY, OR EASILY GROWING COLD; FEVER AND SWELLING SLIGHT, OFTEN IMPERCEPTIBLE.

Gen. XII. Spec. II. Difficulty of arranging the disease felt by Cullen.

Sometimes a sequel of acute rheumatism.

Concerning the proper position, and, in some sort, the nature of this disease, Dr. Cullen confesses himself at a great loss. In his Synopsis, he arranges it as a sequel of acute rheumatism, and so explains it in his definition: yet he gives it a distinct name, that of Arthrodynia, for the express purpose, as he tells us, of having a distinct name at hand for any one who may choose to regard it as a separate *genus*; and whoever is so disposed is at full liberty, he adds, as to any objection of his own. Yet in his First Lines he takes a different view; and perhaps a more correct one than either of the above. Chronic rheumatism, instead of being a mere *sequel* of acute rheumatism, or a distinct *genus*, is here made a separate *species* of a common genus. "Of this disease," says Dr. Cullen, "there are two species; the one named the acute, and the other the chronic rheumatism." And in his subsequent description of the latter, instead of the universal assertion in his earlier work, "pro sequela rheumatismi acuti rheumatismum chronicum dictum *semper* habeo," he modifies it by the word *commonly*. "The chronic," says he, "is *commonly* a sequel of the acute rheumatism*."

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* Aph. ccccl.

GEN. XII. SPEC. II. Arthrosia chronica. Chronic rheumatism.

There can be no doubt, indeed, that it is so; but as, in many instances, it is a distinct disease, characterized by symptoms of its own, and demanding a very different treatment, there can be as little doubt that it ought to be arranged as a distinct species; and in the present system it is thus arranged accordingly.

Sometimes a distinct disease: and hence to be treated of separately.

Varieties as in the acute species.

Symptoms.

Chronic rheumatism has as many, and nearly the same varieties as the acute. It becomes fixt in the loins, in the hip, in the knee, but seldom in the thorax. Its symptoms are in most respects like those of acute rheumatism, only that there is little or no fever: so that while the general heat is very considerable, and the pulse usually upwards of a hundred strokes in a minute in the acute species, the skin in the chronic species seldom exceeds its natural temperature, and the pulse is rarely quicker than eighty strokes; the joints are less swollen, and of a pale instead of being of a reddish hue, cold and stiff, and roused with difficulty to a perspiration; and always comforted by the application of warmth.

The disease continues for an indefinite period, and sometimes only terminates with the life. The affected joint is occasionally debilitated to the utmost degree of atony, so as, when the acute pain is not present, to resemble very nearly a stroke of palsy.

Cold the common exciting cause.

Cold, the common cause of the acute rheumatism, is also a common cause of chronic, even where the acute species has not preceded: and violent strains and spasms may be enumerated as other causes. But it is probable that in these cases the constitution is peculiarly disposed to rheumatic action.

A disease of debility.

The treatment to be founded on this view.

Resinous and terebinthinate preparations.

Every symptom proves most distinctly that the present is a disease of debility; and the mode of treatment must be founded upon this idea. It is hence that stimulants of almost all kinds are found serviceable. Warm active balsams and resins, as those of copaiva and guaiacum, essential oils of all kinds, from resinous substances, as turpentine and amber; from aromatic or pungent plants, as camphor and mustard, and especially cajeput, the green-

GEN. XII. SPEC. II. Arthrosia chronica. Chronic rheumatism.

est distilled oil from the leaves of the melaleuca *Leucodendron*, are all employed in their turn; sometimes alone, where they combine a sedative with a stimulant power, as camphor and cajeput, and sometimes in union with opium, which often proves a very valuable addition.

Alone with opium.

Act usefully as diuretics.

Hence the advantage of horse-radish and the alliacea.

Most of these are, also, powerful diuretics; and as acute rheumatism is best and soonest removed by warm sudorifics, so chronic rheumatism seems to be chiefly relieved, and, indeed, radically cured, by diuretics of a like stimulus. Hence, horse-radish and garlic are often found serviceable; and turpentine still more so; which in truth forms the basis of the greater number of the medicines just enumerated. How far the arum, or dulcamara, may be specifically entitled to this character I cannot determine from my own practice. They are both introduced into the table of diuretics by Dr. Cullen, and are highly commended by many physicians of great celebrity for their arthritic virtues. But it is possible that whatever virtues of this kind they possess are rather derived from their stimulating the excretories generally, and rousing the entire system, than from their acting specifically upon the kidneys. The colchicum *autumnale*, which has sometimes proved serviceable, has more decided pretensions to a diuretic character.

Arum.

Dulcamara.

Meadow saffron.

Local stimulants of service.

Burning of moxa.

Stimulant cataplasms.

Electricity and voltaism.

Local stimulants are, here, of more service than in the preceding species. The cautery of moxa has been more generally used on the continent for chronic than for acute rheumatism, and is certainly more entitled to a trial. In our own country, however, practitioners have far more generally had recourse to cataplasms of ammonia, cummin, and mustard-seeds, occasionally intermixed with euphorbium or cantharides: or, in their stead, have made use of friction, and, which is far preferable, the vapour-bath, brine, warm-bathing: and have afterwards kept the joint well clothed with flannel; and sent through the organ small shocks of electricity, or roused it by the stimulus of the voltaic trough. And, when every thing else has failed, the patient is usually advised to try what, perhaps, it would be better that he should try at first, the mysterious agency of the Bath-waters.

Bath-waters.

The subject ought not to be dropped without briefly adverting to the internal use of the oleum jecoris aselli, common train oil, or that obtained from the liver of the cod-fish, not long ago so extensively tried, I had almost said so fashionable a remedy, in consequence of the warm and confident recommendation of Dr. Percival.

Train-oil;

This offensive material is procured by the process of putrefaction, and appears to derive its stimulant power, at least, as much from rancidity as from any natural quality. Dr. Percival tried it upon a large scale in the Manchester Infirmary, and with so much success, that, nauseous as it is to the taste, rheumatic patients, from being eye-witnesses of its benefit, were in the habit of applying to him for a course of it. Dr. Bardsley has since spoken of it in terms of nearly equal commendation; and Dr. Parr asserts, that "he thinks he has seen chronic rheumatism yield to a steady constant use of this oil, which had resisted every other remedy." Dr. Bardsley's dose was from one to three table spoonfuls in the course of the day. Some years ago the author of this work tried the train oil very steadily and perseveringly in several severe cases of chronic rheumatism, but with very doubtful success in every instance; and certainly without any advantage whatever in one or two, in which the oil was punctiliously persevered in for a month, in the proportion of two ounces a-day. In slight cases, it may sometimes prove salutary, but its virtues cannot fairly stand in competition with those of the terebinthinate oils.

at one time in great favour:

not equal to the terebinthinate oils.

The arsenic solution I have never tried in this complaint. It is strongly recommended by Dr. Bardsley *, and, in his hands, it seems often to have succeeded. It

Arsenic solution.

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* Medical Reports.

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may be commenced in doses of ten drops, and gradually increased to double this quantity, and should be united with a few drops of laudanum if it sit uneasy on the stomach by itself.

SPECIES III.

ARTHROSIA PODAGRA.

Gout.

PAIN, INFLAMMATION, AND FULNESS, CHIEFLY ABOUT THE SMALLER JOINTS: RETURNING AFTER INTERVALS; OFTEN PRECEDED BY, OR ALTERNATING WITH, UNUSUAL AFFECTIONS OF THE STOMACH, OR OTHER INTERNAL PARTS; UNSUPPURATIVE.

GEN. XII. SPEC. III. Origin of the vernacular term.

THE origin of the term gout, or *goute* in French, is little known, or rather is almost forgotten. Among the ancients most diseases accompanied with tumefaction were ascribed to a flow of some morbid fluid or humour to the part affected, which was called a rheum or defluxion: and the rheum or defluxion was denominated cold, hot, acrid, saline, or viscid, according to the nature of the symptoms. The Arabian writers ascribed even this cause to various diseases of the eyes, which were hence called gutta serena and gutta obsura, "clear or cloudy drops or defluxions," according to the external appearance. Rheumatism and gout were alike attributed to the same origin: and as the terms *rheuma* and *gutta* were used in medicine synonymously, both importing defluxion, the old opinion is still verbally preserved, and has descended to us in the names of rheumatism and gout, though the old pathology has been abandoned. "We have still," says Dr. Parr, "the treatise of Carpinati published at Padua in 1609, De GUTTA seu Junctuarum dolore;" but the term may be traced to Valescus de Tarenta, who wrote his Commentary early in the fifteenth century; and Schneider in his Liber Catarrhorum Specialissimus, published at Wittenberg in 1664, usually denominated the sixth volume, and peculiarly scarce, describes the gout as a catarrh *."

Distinctive marks of gout and rheumatism.

The resemblance between gout and rheumatism is so close that the one is often mistaken for the other; and both by Bergius were regarded as convertible: yet, while the former chiefly fixes on the small joints, the latter attacks the large; and the first is often hereditary, while the second is rarely or never so. We have also observed already that gout is far more connected with a dyspeptic state of the stomach than rheumatism; that its incursions are, for the most part, more sudden, its nocturnal exacerbations less striking, but its remissions much clearer.

Diversity of opinions in theory and practice.

Gout, moreover, is a far more complicated complaint than rheumatism: and hence there is no disease to which the human frame is subject that has led to such a variety of opinions, both in theory and practice, many of them directly contradictory to each other, as the gout; and I may add, there is no disease concerning the nature and treatment of which physicians are so little agreed: so that to this moment it constitutes perhaps the widest field for empyricism, and the hottest for warfare, of any that lie within the domain of medical science.

Hence opening a wide field for empyricism.

Subjects of dispute.

Is the gout a local or a constitutional affection? is it a spasm or a poison? is its course beneficial or mischievous? should its inflammation be encouraged or counteracted? is it to be concentrated or repelled? is it to be treated with cordials or evacuants? with cold or with heat? with a phlogistic or an antiphlogistic regimen? No sets of questions can be more repugnant to each other

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* Med. Dict. App.

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than these are; and yet there is not one of them but we may obtain an answer to either in the negative or in the affirmative, by applying to different practitioners for this purpose.

General history of the disease our best guide to a correct pathology.

Shutting the door to disputation and unfounded theory as far as we are able, let us, in as few words as possible, attend to the clear and established history of this disease, as we would to that of any other, and draw our pathology, and our mode of practice from the principles which it will be fairly found to inculcate.

Gout a disease of the system:

In the first place, it is admitted on all hands, or at least with exceptions so few as scarcely to disturb the general consent, that gout, in whatever way it shows itself, is a disease of the system; or, in other words, is dependent upon a peculiar diathesis or state of the constitution.

sometimes original; at other times derived.

And, next, it is as commonly admitted that this diathesis is, in some instances, original, and in others hereditary or derived. There are many persons in whom this complaint makes its appearance, who can trace no such affection in the blood of their ancestors; and as such persons are specially distinguished by a habit of indolence, luxury, and indulgence, and particularly in the pleasures of the table, it is from this habit that the gouty diathesis is supposed to originate. There are others, who, though exhibiting a life of great regularity and abstemiousness, afford proofs of the same diathesis in occasional paroxysms to which it gives rise: and such persons are almost always capable of tracing it hereditarily. For the diathesis having once established itself, keeps its hold on the system, and is propagated from race to race whatever be the manner of life of the individual, or the general state of his constitution; though there can be no question that those descendants are most subject to its paroxysms who indulge in the excesses that laid its first foundation.

Nature of the constitution where the disease is original.

Constitution frequently different when derived.

Durability of the diathesis when once established.

Diathesis may remain quiescent for years or through life: unless

A gouty diathesis thus produced, like a phlogotic diathesis, to which in many respects it makes a near approach, may remain quiescent and not discover itself for years, till it meets with some occasional cause of

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excited by some occasional cause:

when it shows itself differently in different organs.

excitement, when it shows itself by a sudden and painful disturbance of some part of the system, but a disturbance of a very different kind, as well as affecting very different organs, according to the temperament, constitution, manner of life, or some incidental circumstance of the individual where the general health is sound, fixing on one or more of the extremities in the form of a peculiar but very acute inflammation that runs through a regular paroxysm and gradually subsides: and, where the health is infirm, and the general form debilitated, exciting great derangement in some internal organ or set of organs, and particularly those of digestion; or shifting from one form to another, and thus proving itself under every form to be the same disease, and laying a foundation for the three following varieties:—

α Regularis. Regular fit of gout.	Pain, swelling, and inflammation of the affected joint considerable and acute; continuing for several days, often with remissions and exacerbations; then gradually resolving, and leaving the constitution in its usual or improved health.
β Larvata. Disguised; lurking; atonic gout.	Disguised and lurking in the constitution, and producing derangement in the digestive or other functions, with only slight or fugitive affection of the joints.
γ Complicata. Retrograde; recedent; misplaced gout.	The disease fixing on some internal organ instead of on the joints; or suddenly transferred from the joints after having fixed there; producing in the internal organ affected, debility or inflammation according to the state of the constitution.

GEN. XII. SPEC. III. Arthrosia Podagra. Gout. Predisposing cause of original gout, an entonic state of the vessels.

The predisposing cause of a gouty diathesis, when it first forms itself in an individual, it has already been observed is plethora with entonic condition of the vessels. And hence in its origin, as well as in the symptoms it evinces under a regular paroxysm, gout makes a near approach to various other inflammations of which we have already treated; and is more disposed to show itself, where it has been transmitted hereditarily in men of robust and large bodies, of large heads, of full and corpulent, and especially gluttonous habits, or whose skin exhibits a coarser surface in consequence of being covered with a thicker rete mucosum. Castration is said to act as a general preventive; but on what facts I know not: though, admitting the truth of the assertion, it is not difficult to explain the reason, from the entonic energy demanded for the first production of the disease.

Hence the inflammation of a regular paroxysm bears a relation to other inflammations produced by entonic action: and hence possibly eunuchs not predisposed.

Such is a brief history of the origin, hereditary transmission, and effects of the podagric diathesis; which must be distinguished from the paroxysms to which it gives rise, and which constitute the only manifest indications of its existence.

Diathesis must be distinguished from paroxysms.

Paroxysms how excited.

The paroxysms of gout are excited by certain occasional causes, some of which are obvious and some doubtful, or altogether unknown; but, without the cooperation of these, the gouty diathesis may remain unnoticed or quiescent in the body for years, or perhaps through the whole term of a man's life. And hence it is that we often see an individual, whose ancestors have been notorious for this complaint, pass the whole of his days without betraying any marks of it, while it appears in one or more of his children, perhaps in their very boyhood.

Occasional causes, what.

The occasional causes are very numerous; for where the diathesis exists strongly, almost any thing that is capable of producing a general disturbance in the system, or of throwing it off the balance of ordinary health, is sufficient to become a cause; and this whether the incitement be of an entonic or an atonic character. And hence paroxysms in different individuals are often produced by

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intoxication, or excess of eating; violent emotions of the mind, particularly the depressing passions, as grief and terror; sudden exposure to cold when the skin is in a state of perspiration; wet applied to the feet; great labour of the body; severe application of the mind, especially when protracted so as to break in upon a due allowance of sleep; cold, flatulent fruits, and often acidulous liquors; a sudden change from a spare to a full, or from a full to a spare, diet; excessive evacuations of any kind; and, occasionally, a sudden cessation of such as are habitual, as the suppression of a periodic hemorrhoidal flux, the cessation of the catamenia, or even the closing of an issue that has long been in a state of discharge.

Violent and protracted paroxysms confirm the diathesis and quicken the return of fits.

It seems, moreover, indisputable that the more violent the attack of a paroxysm, and the longer its continuance, the more the diathesis is confirmed, and the oftener the attack is renewed. On which account it is of great importance to alleviate and abridge the paroxyms as much as possible, and especially when they are as yet new to the system.

Whether particular climates more than others disposed to produce gout.

Whether particular climates or countries are more disposed to favour the existence of gout than others, separate from the occasional causes just adverted to, may be doubted. Such an opinion, however, has prevailed among the vulgar as well as among many of the more learned in most ages. Thus, among the Greeks, it was a popular belief that Attica was the hot-bed of gout, as Achaia was of ophthalmy; whence Lucretius,

> Atthide tentantur gressus, oculeique in Achæis finibus *.
> Gout clogs the feet in Attica, the sight
> Fails in Achaia.

And thus, too, in more recent times, we are told that China †, and even some of the German provinces, are

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* De Rer. Nat. vi. 1117.

† Le Coute, Nouvelles Memoires sur l'état present de la Chine. Paris 1696.

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exempt from the attack of gout, while in our own country it exercises an almost irresistible sway. The last assertion is true enough, but we are not driven to the variable nature of our climate to account for the fact.

Proximate cause variously accounted for.

Thus far we can proceed safely respecting the general pathology of this Proteus-disease. But the moment we enter upon the field of its PROXIMATE CAUSE, we are bewildered in a hopeless labyrinth, without a thread to guide our entangled footsteps amidst the growing darkness. There has, indeed, been no want of attempts to explain the subject, but thus far they have been attempts alone—ingenious conjectures rather than enucleated facts. Thus some, among whom was the learned Boerhaave, resolved the proximate cause of gout into a morbid texture of the nerves and capillaries; and others, into a peculiar acrimony of the fluids; respecting the nature of which, however, those who adopted this view were never able to agree; several of them, like Hoffman, affirming it to be a tartaric salt, several a bilious salt, several again an acid, and several again an alkali.

Hypothesis of Boerhaave:

of Hoffman.

Morbid matter by these writers supposed to be thrown off.

This morbid material, in whatever it consists, was supposed to be separated from the system and thrown off* during the continuance of the paroxysm, which, consequently, it became the duty of the physician to encourage. And by some pathologists it was held that the morbid matter thus despumated has, in various instances, proved contagious, and this not to man only but to other animals as well: thus M. Pietsch informs us that he has known dogs affected with the same disease by licking the ulcers that have followed upon a fit of gout accompanied with chalk-stones.

Has been said to be contagious;

and even to affect dogs.

Most of these views opposed by Cullen, in favour of his own.

Dr. Cullen has taken great pains in a series of nine consequutive arguments to prove the error or absurdity of most of these opinions: and then he proceeds to establish his own; which consists in regarding the proximate

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[*] Schäffer Vers. II. p. 176, who denies it: and Degner De Dysenteria, who maintains it.

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cause of a gouty diathesis as dependent upon a certain vigorous and plethoric state of the system; and the proximate cause of a gouty paroxysm as produced by an occasional loss of tone in the extremities, often communicated to the whole system, but especially to the stomach, succeeded by a powerful re-action in the same quarter which constitutes the pain and inflammation, and is an effort of the vis medicatrix naturæ to restore the tone thus injured*. But by this hypothesis we gain as little as by any of the preceding. It is obviously a mere extension of the Cullenian doctrine of fever to the disease before us, and is chargeable with the same incongruity: for here, as in fever, the stage of strength or increased energy is made to depend upon the stage of weakness; as the weakness or loss of tone is made dependent upon a peculiar vigour and plethoric state of the system. There is, indeed, no great difficulty in conceiving how loss of tone may follow upon excess of energy; but by what means recovered energy is to be a result of loss of tone, is a problem of more laborious solution.

I have dwelt the longer upon this subject because it involves a very essential point in the remedial process, and one which has rarely been sufficiently attended to: before we enter upon which, however, it may not be inexpedient to take a fuller glance at the symptoms by which the different varieties of the disease are distinguished.

α A. Podagra regularis.
Regular fit of the gout.
Described in its course.
Sometimes preceded by particular signs.

One of the marks by which a REGULAR PAROXYSM of GOUT is said to be distinguished from that of rheumatism, is the suddenness of its onset. This is true, as Sydenham has correctly observed, with regard to the general course of regular or entonic gout, in which the constitution is in other respects perfectly sound. But in other cases the fit is often preceded by certain prodromi which those who have suffered from it before very sufficiently understand, and uniformly take as a warning; such as a coldness or numbness of the lower limbs, alternating with a sense of pricking or formication along their entire length;

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* Pract. of Phys. Part I. B. II. Ch. XIV. DXXXIII.

GEN. XII. SPEC. III. α A. Podagra regularis. Regular fit of the gout.

frequent cramps of the muscles of the legs; a crassament in the urine *; slight shiverings over the surface; languor and flatulency of the stomach; and sometimes a pain over the eye-lids or in some other organ †.

Generally appears in the spring, but not always.

The paroxysm is said by Dr. Sydenhan, who has drawn its picture to the life, to show itself most commonly in January or February; but I have known it occur so often towards the close of the summer, and in the autumn, and have attended so many patients who have never had it except in the latter seasons, that the rule does not seem to be in any way very well established.

Description.

The first attack is usually in one of the feet, most commonly about the ball or first joint of the great toe; it commences at night or during the night, and there is sometimes, though not always, a slight horror, succeeded by a hot stage. The local pain and swelling increase in violence, the joint assumes a fiery redness, and the whole body is in a state of great restlessness. The symptoms remit sometimes towards the next morning, yet occasionally not till the morning after; but they still return during the night, though in a more tolerable degree, for three or four days, or even a week; when the inflammation subsides as by resolution; the foot almost instantly recovers its vigour, as though nothing had been the matter with it; and if the patient have been antecedently indisposed, he enjoys, as on recovering from an ague, an alacrity of body and mind beyond what he has experienced for a long time before; the constitutional indisposition disappearing with the paroxysm.

Return of the paroxysm at first annual or less frequent: afterwards the intervals much shorter.

At the commencement of the disease, the return of it may be annual, or not oftener than once in three or four years; but it is perpetually encroaching on the constitution, so that the intervals gradually become shorter, and the attacks more frequent and of longer continuance: whence, as Dr. Cullen has justly observed, "in an

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* Butler, Nadere out dekkinge der menschelyke Waters. Harlem. 1697

† Eph. Nat. Cur. Dec. I. Ann. III. Obs. 252.

advanced state of the disease, the patient is hardly ever tolerably free from it, except perhaps for two or three months in the summer."

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Nothing can be more specific, more true to itself, or more distinct from every other kind of inflammation than that of the disease before us, when thus exhibited in a regular fit; the inflammation of erythema does not differ more from that of phlegmon than both these, and indeed every other from that of gout: it never suppurates, never ulcerates when simple and genuine, however violent may be the attack, and though to the eye of inexperience the skin may seem to be on the point of bursting; while, in the midst of the severest pain, there is a sense of numbness, weight, and want of energy; insomuch, that if the pain could for a moment be forgotten, the limb would feel paralytic; and though the muscles which move the limb be not affected, they raise it or drag it along like a dead load. If the inflammation run through its course where it first fixes, it subsides by a resolution that leaves no external discoloration or internal weakness or disability; and if it make a transfer from one extremity to another, it passes with inconceivable rapidity; the limb now affected being loaded with all the vehemence of the inflammatory action; and that lately the seat of pain being all of a sudden restored to perfect soundness.

Character of the inflammation specific.

It is rarely, however, that any metastasis takes place on its first appearance in a healthy constitution; nor indeed till after various organs or the entire habit has been weakened by repeated assaults. We have already observed that it is the nature of the disease to weaken the habit in this manner till the system is completely broken down, as well in mind as in body, and becomes a prey to its tyrannic control. In this case the paroxysms, though much longer and more frequent, are less violent and painful than at first; but there is no joint exempt from its incursion, nor perhaps an internal organ that does not suffer from induced weakness: so that, in the language of Sydenham, "the patient exists only to be wretched and

Metastasis not common in sound health: but the system weakened by fresh paroxysms: and at length broken down.

Gen. XII. Spec. III. α A. Podagra regularis. Regular fit of the gout.

miserable, and not at all to taste of the happiness of life."

In weak habits the secretion of calcareous earth often augmented.

It is a remarkable fact, hitherto indeed little dwelt upon and altogether unaccounted for, that as the system advances in years and debility, and every other secretion progressively fails, that of calcareous earth seems to increase. Hence the bones of aged persons are more fragile and apt to break upon slight concussions; and the arteries and various other parts become ossified or loaded with nodules of lime-stone; and where a powerful sympathy exists between the kidneys and the stomach, and either of these is in an infirm state, we have a larger deposit of the same material in the kidneys or the bladder.

And hence in debility produced by gout.

A similar increase of calcareous earth takes place in the weakness of chronic gout; every affected joint becomes loaded with its secretion, which collects and hardens into nodules in its cavities, or in the adjoining cellular membrane, or bursæ mucosæ, and renders motion uneasy or destroys it altogether. The lime-stone, moreover, as it hardens, acts as a foreign irritant to the distended integuments, and produces, what simple inflammation of the gout never does, ulcerations and an offensive discharge.

Hence often nephritic calculi.

For the same reason nephritic calculi are often a sequel of gout when it has assumed a chronic form; and the children of gouty parents are said to be hereditarily disposed to both complaints, some of them exhibiting a podagric and others a nephritic affection.

β A. Podagra larvata. Disguised, or atonic gout: description of. Found in delicate constitutions and why. Under various characters;

Thus far, we have followed up the progress of a regular attack of gout in a constitution otherwise healthy and vigorous. But the same diathesis exists in systems of delicate and infirm health, and where there is a want of sufficient energy to work up a fit of inflammation, and throw it off at its appropriate outlets. And in such case, as soon as it becomes roused into action by any of the causes of excitement already enumerated, it constitutes the SECOND VARIETY, assumes the guise of various other diseases, as dyspepsy, hysteria, hypochondrias, palpitations of the heart, vertigo, hemicrania, with several modifications of palsy or apoplexy.

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β A. Podagra larvata.
Disguised, or atonic gout, but chiefly affects the digestive organs.
Fugitive paroxysms.

The stomach and bowels, however, form the chief seat of affection; the appetite is fastidious or destroyed; a spasmodic stricture or painful oppression is felt in the epigastric region, or the stomach is distended almost to bursting with flatulence; nausea, eructations, vomiting, and all the symptoms of indigestion follow, and are alternated with severe colic or costiveness. In the mean while the disease shows itself at times, in one or more of the joints in slight and fugitive pains, as though making an ineffectual effort to kindle up a paroxysm of proper inflammation, but which there is not energy enough in the system to accomplish; whence the articular pains cease almost as soon as they appear; and the visceral derangement is renewed; sometimes slowly subsiding after a continuance of several weeks; and sometimes wearing out the entire frame, and terminating in abdominal or cellular dropsy.

γ A. Podagra complicata.
Recedent; misplaced gout.
How produced.

It sometimes happens, however, that while the general constitution of a podagric patient is tolerably sound, one or more of the internal organs form an exception to the general rule, and are less healthy than the rest. And as upon an excitement of gouty inflammation in a gouty habit, the inflammation seizes ordinarily upon the weakest part of the body, it makes its assault upon such organ rather than upon the hands or the feet; or, if it commence in the latter, is readily transferred to it; constituting the third of the varieties before us, and which has usually been called RETROGRADE or MISPLACED GOUT. And if the general system should, at the same time, be below the ordinary tone of health when the paroxysm is thus excited by the force of some occasional cause, the organ affected may evince great languor and painful inertness, as in the second variety, rather than acute inflammation, as in the first. The sensation in the stomach, instead of being that of a fiery coal, is that of a cold lump of lead; in the head it changes from maddening pain to oppressive horror, in which the patient suddenly starts from sleep almost as soon as he has began to doze, from the

Symptoms explained.
Sensations when in the stomach:
in the head.

Gen. XII. Spec. III. γ A. Podagra complicata. Recedent; misplaced gout.

hideousness of the ideas that rush across the mind and form the distracting dream.

Sometimes in the bladder or rectum.

The fit is sometimes transferred to the bladder; in which case there is acute pain at the neck of the organ, strangury, and a discharge of thin acrid mucus from the urethra. The rectum has also been occasionally the seat of metastasis, and has evinced various species of affection, as simple vehement pain, spastic constriction, or hemorrhoidal tumours. When thrown upon the lungs it mimics the symptoms of a peripneumony.

Indications of cure to apply to the paroxysms and to the intervals.

In applying the art of medicine to the cure or alleviation of gout, our attention must be directed to the state of the patient during the paroxysms, and during their intervals: and particularly to the state of his constitution or previous habits, which, according to their character may demand a different and even an opposite mode of management.

Treatment during the paroxysms.

Let us commence with the PAROXYSMAL TREATMENT: and, first of all, with that of the inflammatory attack, as it shows itself in a regular fit of the disease.

During the paroxysm of a regular fit.

It was formerly the belief, as we have already seen, that a gouty paroxysm was an effect of nature to throw off from the constitution, and thereby restore it to a state of perfect health, some peccant matter forming the proximate cause of the distemper; and it was hence, also, conceived, in addition, to adopt the language of Sydenham, that the more vehement the fit, the sooner it will be over, and the longer and more perfect the intermission. And in this view of the subject there can be no question that the wisest plan must have been that of leaving the paroxysm to run through its regular course without interruption. Yet, as this hypothesis has long fallen into discredit, we are not in the present day prevented, on such ground, from endeavouring to subdue the inflammation of a gouty paroxysm by the ordinary means resorted to in inflammations of any other kind, as bleeding, purgatives, sudorifics, local astringents, and even refrigerants. But a very general objection has since

How far the ordinary means used in entonic inflammations may apply.

Gen. XII. Spec. III. γ A. Podagra. Treatment of gout during the paroxysms. Objection from supposed danger of repulsion: and hence the general practice vague and vacillating. Practice of Sydenham; of Cullen;

been taken to this plan on another ground, and that is, the great danger of repelling the disease to some internal organ of more importance, and thus of converting a regular paroxysm into a case of retrograde or atonic gout. And in consequence of this apprehension, the practice, even in the hands of many of our most celebrated physicians, has, for a long period, been in the highest degree vague and vacillating. Sydenham prohibited equally purging and sweating of every kind, whether gentle or copious, and only allowed bleeding where the patient was young and vigorous, and on the first or second paroxysm: while of cold applications he takes no notice whatever. He admits, however, the use of laudanum where the pain is very acute: trusting chiefly for the cure of the disease to an alterant regimen and apozems to be resorted to in the intervals. Dr. Cullen allows bleeding with the same restriction as Sydenham, though he recommends the application of leeches to the inflamed part, as at all times a safer practice than the use of the lancet. Of cathartics and sudorifics he takes no notice otherwise than as these may enter into the general course of an antiphlogistic regimen; he is decidedly adverse to the use of cold; and thinks that warm-bathing and emollient poultices, blistering, burning with moxa, camphorate and aromatic oils, induce the inflammation to shift from one part to another, and consequently tend to repel the inflammation from the extremities to some more important organ: while opium, though it affords relief in present paroxysms, occasions them to return with greater violence; and, therefore, he observes, by way of conclusion, "The common practice of committing the person to patience and flannel alone, is established upon the best foundation *."

the last decidedly adverse to the employment of refrigerants, and thinks most local applications induce a metastasis. Objects to opium, and trusts chiefly to patience and flannel.

Why a more active course ought to be pursued.

Now, as we have already seen that the gout, after it has shown itself in paroxysms, is never idle; that one paroxysm, in the opinion of Sydenham, Cullen, and

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* First Lines of the Practice of Physic, Aph. DLXIX.

Gen. XII. Spec. III. γ A. Podagra. Treatment of gout during the paroxysms. Whether the fear of repulsion ought to extend equally to all the varieties, and the ordinary reducing process may not sometimes be used safely?

every other physician, hastens on another, renders its intervals shorter, and its duration longer; and progressively saps all the energies both of mind and body, and renders life itself a burden; it is of serious importance to inquire whether this fear of a repulsion, however well founded in some instances, is not allowed too generally; whether it be not possible to draw a definite line between the form of the disease in which it ought to operate, and that in which it ought not? and whether in the latter case we may not derive all the benefit from a full use of a reducing process, which is obtained in other inflammations, accompanied with a like degree of constitutional vigour?

General character and tendency of the disease.

From the history of this disease, as it has already passed before us, we may draw this general corollary: that the specific inflammation of gout, or whatever other morbid character it may evince, when once excited by some occasional cause into action, has a peculiar tendency to fix and expand itself upon the weakest parts of the system, and where several parts are equally weak, to pass in sudden transitions from one part to another, though transitions are rare where the system is sound.

In healthy constitutions the weakest parts are the extremities.

In healthy constitutions the weakest parts are the extremities; and hence, in such constitutions, these are the parts, as we have already seen, in which the gout uniformly opens its assault. Here it commences, and here it runs through its course, seldom migrating, or, when it does migrate, only passing from one extremity to another; as from foot to foot, or from one of the feet to one of the hands; and limiting itself to these quarters, because they are the weakest parts of the system: though, as just observed, in a thoroughly sound constitution such migrations are not common.

In unhealthy habits, other parts. Hence sometimes the extremities and sometimes other parts the seat of paroxysm.

In unhealthy habits, however, the extremities are not the weakest parts of the system, but perhaps, the stomach, or the heart, or the head, or the lungs, or some other organ; while several of these organs may, moreover, be equally debilitated, according to the idiosyncrasy, or to accidental circumstances. And true to the general rule, we see the gouty principle, when roused into action in habits of this kind, fixing itself from the first on one of those important viscera rather than on the extremities; or roaming from one to another, on its alternating its course from these organs to the extremities, or from the extremities to these organs. And as metastases are rare where the system is sound, they become frequent in proportion as it loses this character, and especially in proportion to its debility in particular parts.

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These are rules which we cannot too closely study and commit to memory, and they seem to point out to us the line of distinction between that form of the disease in which we ought to entertain a prudent fear of revulsion, and that in which we may safely act without any such fear whatever. They directly lead us to two states of constitution that require a very different, and in many instances a very opposite mode of treatment; and seem to settle the important question before us, under what circumstances it may be expedient to employ a palliative plan; and under what a cooling and reductive.

And hence a line of distinct treatment pointed out, often perfectly opposite.

Let us commence with the first of these two states, forming a regular but violent fit of gout as it shows itself in a sound constitution, and inflicts its torture on the hand or the foot. Guiding ourselves by the laws just laid down, there seems no reason why, instead of "committing the person to patience and flannel alone," we should not pursue the evacuating and refrigerent means employed in entonic inflammations of any other kind, and have cause to expect a like success: such as bleeding, so strongly recommended by Dr. Heberden, and allowed occasionally by Sydenham, and emptying the bowels, relaxing the skin generally, and cooling the fiery heat of the affected limb by cold water or any other frigorific application. With a transfer of morbific matter we have now no longer to contend. Yet, even where such a cause is admitted, as in most exanthems, the plan thus proposed is, in many instances, pursued without hesitation. Thus, in measles, cathartics and venesection are not only in general use, but often indispensable; in the height of malignant scarlet-fever,

In sound constitutions no danger of metastasis, and hence evacuants and refrigerants may be employed.

Illustrated by the treatment of exanthems.

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we sponge or wash the entire surface of the body with cold water; and in small-pox, not only purge freely, but expose the patient to the coldest atmosphere of the winter-season.

In weakly habits metastasis is common; and hence the same treatment highly mischievous.

In weakly habits, or idiosyncrasies, or incidental debilities of particular organs, we have admitted that a metastasis, as we have already seen, is a frequent result, and peculiarly marks the character of gouty inflammation; and here, indeed, refrigerants, violent purgatives, and venesection ought to be most sedulously abstained from; and not unfrequently the best practice we can adopt is that of "committing the person to patience and flannel alone." But what I am anxious to establish is, that, agreeably to the laws which regulate the progress of gout, a metastasis in sound and vigorous constitutions is rarely to be expected, and perhaps never takes place except from one extremity to another. In order that some internal organ may become the seat of transferred gout, it is necessary that it should possess a weaker action than the part from which the inflammation is to be transferred: but the parts of weakest action in a sound and vigorous constitution are the extremities themselves: and it is probably because the living energy is, in all the extremities, upon a balance, that in a sound frame a metastasis, even from one extremity to another, is a rare occurrence.

Subject further explained.

Local infirmity the only ground for a metastasis.

Local infirmity seems to form the only ground for a metastasis; but where health prevails generally, and all the organs are equally sound, admitting the inflammatory action, instead of being reduced and resolved, to be repelled, there is no one organ to which it seems capable of being transferred rather than to another; and in such case it would be most reasonable to suppose that the morbid entony would be thrown back generally and divided amongst the whole, from which division of labour little mischief could happen.

If thrown back in a robust frame, diffused over the frame generally.

Hence in sound health sometimes perhaps partially repelled;

As far as I have seen, the inflammation of a regular fit of gout subsides gradually, though rapidly, under the treatment now proposed, without any repulsion whatever. Yet, in a few instances, it has seemed to be

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repelled in part, whilst it has chiefly passed off by resolution. For during the use of a cold pediluvium or shortly afterwards, I have known patients speak of a peculiar kind of *aura* creeping over them and through them, and exciting an undefinable sense of glowing which has lasted for a few minutes, without any inconvenience at the time, or even any change in the pulse; and certainly without any ill effect afterwards.

Advertency to facts proving the proposed plan injurious,

But, it may be replied, there is no resisting facts. The cases are innumerable in which great mischief has resulted from the depleting and the refrigerant plan; and, as we cannot always tell that all the internal organs are or are not in a state of sound health, it is most prudent to abstain from a practice which may prove highly injurious in case of a mistake.

Yet highly and essentially beneficial in numerous cases.

Hence the want of proper discrimination.

The answer to this remark is, that here, as well as in every other disease, professional judgment is to be called into exercise, and the practitioner is to draw largely upon that skill and discrimination which it was the object of his education to bestow upon him: and thus bestirring himself, he will rarely fall into an error. That mischief has resulted, and frequently, from the use of the plan before us, cannot be denied by any one; but that great and essential good, and an easy and rapid cure have been also, in hundreds of instances effected, must be admitted as readily. No clear distinctive line, however, has hitherto, so as far as I am acquainted with, been acted upon or even laid down: and hence it is rather to be ascribed to a want of discrimination upon this subject that the evils adverted to are chargeable than to any mischief in the plan itself. Yet it may be doubted whether the injury produced even by an injudicious use of evacuants and refrigerants amounts to a thousandth part of that entailed on the constitution by allowing the gout to make its inroads tacitly and unresisted; till by degrees it triumphs equally over all the powers, as well of the body as of the mind, and, in the forcible language of Sydenham, "The miserable wretch is at length so happy as to die."

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Of the benefit produced by the external use of cold-water the author can speak from a trial of several years upon his own person, and is only anxious that others should participate in what has proved so decisive a comfort to himself.

Benefit exemplified in the author's own person.

Case described.

The author, in the enjoyment of undisturbed health, amidst great exercise of body and mind, which however acted as a relief to each other, was, for the first time, in his forty-seventh year, attacked with a regular fit of gout in one of his feet, some of his ancestors having been subject to the same complaint. Having long before drawn the distinctive line of treatment just adverted to, and carried it successfully into practice, he was on the point of trying it on himself, and particularly the affusion of cold water; but his family were so alarmed at the proposal, that he consented for the term of three days, but no longer, to follow the Cullenian prescription, and to employ nothing but flannel and as much patience as he could command. The foot was in consequence warmly wrapped up, and the sofa received him when he quitted the bed. The inflammation was extensive, and very painful, the pain, however, remitted occasionally in the day, yet returned towards night with a vehemence that entirely deprived him of sleep, and kept him in a profuse perspiration; but a perspiration that afforded no relief. The limited time having expired, and the inflammation having gradually augmented instead of subsiding, early on the third morning he called for a large basin of cold-water, stripped off the flannel, and boldly plunged the foot into it for four or five times in succession. The application was peculiarly refreshing; the fiery heat and pain, and all the inflammatory symptoms diminished instantly; he repeated the cold bathing two hours afterwards, and continued to do so through the whole of the day; the complaint gradually diminishing upon every repetition. He slept soundly all night, the pain was trifling, and the inflammation had almost subsided by the morning: he was able to hobble a little in the course of the day;

Reclined position and application of flannel.

Bath of cold-water.

Gradual decline of the symptoms.

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and in four and twenty hours more the fit completely disappeared, and he was capable of resuming his accustomed exercise of walking. For five or six years afterwards he suffered annually from a like attack, but always had immediate recourse to cold immersion or affusion. No paroxysm continued longer than about three days, nor any one ever confined him totally to his house for a single day. Since this period, the use of a carriage has prevented the excess of fatigue which he had hitherto often undergone; but from a love of walking he still frequently indulges in it; and for about the last three years he has had neither gout nor any other complaint to interrupt his usual career of good health. During the preceding paroxysm, the appetite being good, the bowels regular, and the pulse not much quickened, he made use of no collateral means, nor ever found the use of the cold water productive of the least inconvenience; though he has occasionally been sensible of a gradual creeping through the system of the peculiar aura just adverted to, which may perhaps be called the *aura podagrica* but which constituted no unpleasant sensation.

The practice not of modern invention, whether in respect to evacuants

The practice before us, however, is by no means of modern invention, however it may have become a subject of warm controversy in the present day. An active evacuant plan, both by venesection and purging, has never ceased to be in use among many practitioners, and is particularly alluded to by Sydenham, though with a view of entering his protest against it, as injurious to a free discharge of the peccant matter, which, in his opinion, required to be carried off: while, with respect to the external use of cold water, not to mention that it seems to be alluded to by several of the Greek writers, and especially by Hippocrates*, it has descended in a stream of recommendation from Zacutus Lusitanus† in 1641 to Kolhaas‡,

or refrigerants.

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* Aphor. Sect. v. p. 25.

† De Medicorum Princip. Historiâ, Lib. III. Amsterd. 1641.

‡ Baldinger, Neuer, Mag. Band. v. p. 521. 1788.

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and Keck* in 1788 and 1789; Bartholin speaks of the use of snow as a common application in 1661†, and Pechlin both of snow and cold sea-water towards the close of the same century‡.

Has been employed rashly and fatally. Hence the necessity of attending to the line pointed out.

But this treatment, I am ready to admit, has often been employed rashly, and sometimes with great and even fatal mischief. It ought never to be ventured upon except, as already stated, where the constitution is decidedly sound and vigorous; for though I subscribe to much of Dr. Kinglake's therapeutic plan, I cannot agree with him that a gouty paroxysm is a merely local affection. The treatment before us should be limited to those who are in full vigour, and perhaps entony of health; and is especially to be avoided where the stomach is dyspeptic, the lungs asthmatic, the heart subject to palpitation, the head to nervous pains or drowsiness; or where there is any known disability in any other important organ.

Treatment of regular fit when a different plan is called for.

Local applications.

Yet even here we need not, I think, condemn the sufferer to the torture till cured by patience and flannel; for it will often be in our power at least to palliate his pain, and not unfrequently to expedite his cure, without any risk whatever of affecting his general state of health. Leeches may, in many instances, be applied where venesection would be of doubtful expediency; a liniment of oil of almonds impregnated with opium, rubbed on the tumefaction with a protracted and very gentle friction, I have often found highly serviceable in mitigating the pain; and epithems of tepid water, as recommended by Dr. Scudamore, alone or mixed with a portion of ether or alcohol, formed by cloths wetted with the fluid, and applied to the inflamed part, renewable as they become dry, in many cases prove a grateful substitute for cold water; and are preferable to poultices, warm water, or even vapour-baths, which too generally relax and

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* Abhandlungen und Beobachtungen. Berl. 1789.

† De usû nivis medico, 1661, 8vo.

‡ Observ. Physico-med. Hamb. 1691, 4to.

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weaken the joint, and prevent it from recovering its elasticity, after the paroxysm is over, so soon as it otherwise would do.

Treatment of gout during the paroxysms. Gentle aperients. Breathing perspiration. Opium.

At the same time, the body should be cooled with gentle aperients or injections; and while drenching sweats are avoided, which never fail to be injurious, the breathing moisture or diapnoe should be imitated, which often breaks forth naturally in an early part of the morning, and is sure to afford relief after a night of distraction. Nor should opium be omitted where the pain is very acute; for, while it affords temporary ease, it diminishes the duration as well as the violence of the paroxysm. Dr. Cullen, in his Practice of Physic, seems disposed to postpone the use of this medicine till the paroxysms have abated in their violence, for when given in the beginning of gouty paroxysms he asserts that it occasions the fits to return with additional fury. Yet it should never be forgotten, that it is a law in the history of gout, and one to which we have already adverted, that the frequency and vehemence of the ensuing paroxysms are measured by the violence of those that have preceded.

Regimen.

In the mean while, the regimen should be light and inirritant; and the diet below the standard to which the patient has been accustomed; though to guard against a metastasis to the stomach, we must be cautious that we do not reduce it too much. His beverage should be cool and unstimulant: Sydenham allows him sound table beer, and, if he have been accustomed to stronger malt liquors, such a drink may be conceded to him. His chamber should be well ventilated, and his dress light and easy.

Treatment in the second and third varieties.

In the two ensuing varieties, constituting atonic and retrocedent gout, we have a podagric diathesis grafted upon an unsound frame; the unsoundness being general or local: and, however fearless we may be of the disease fixing on any internal organ in the preceding variety, we have here a constant apprehension that it may do so, and in many cases see it commence in such organs.

Curative intention in atonic gout:

In atonic gout, our uniform attempt should be to pro-

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duce a transfer from the part on which it has seized, and fix it in the extremities. In retrocedent gout, on the contrary, to render the vacillating attack on the extremities more permanent, and prevent it from shifting to any other quarter.

The first obtained by tonics and a generous diet.

Pediluvium.

To obtain the first intention, we have to strengthen and even stimulate the system generally by warm tonics and a generous diet, and above all things to take off the severe suffering, in whatever it may consist, from the affected organ; for the longer the fit continues there, the weaker it will become, and the less capable of any instinctive remedial exertion. At the same time we may solicit the paroxysm to the extremities by putting the feet into warm water, and thus unstringing the tone of their vessels; so as to bring the standard of their atony below that of the affected organ.

Sufferings in this variety often insupportable.

In atonic gout, the sufferings, though widely different according to the seat of the disease, are almost insupportable. In the head the pain is maddening, or the disorder is accompanied with great horror, or mimics the stupor of an apoplexy: in the stomach there is a faintness like that of death, with the sense of a cold lump of lead lodged within it; or there is a gnawing or a burning agony, or a spasmodic stricture which cuts the body in two, and renders breathing almost impossible; often also accompanied with a rapid and sinking palpitation of the heart.

How to determine that the anomalous symptoms are really from gout.

Stimulant cordials,

made aperients.

It is of importance, before we proceed, to determine accurately that these anomalous symptoms are really those of gout; of which we have chiefly to judge from the general character of the patient's constitution, his hereditary predisposition, habits of life, and the ailments which he has been previously subject. In most cases, to during the paroxysm, and especially, where the stomach is affected, the warmest cordials are necessary, as brandy, the aromatic spirit of ammonia, the tincture of ginger or of capsicum; or, what is still better, usquebaugh. And it is always advantageous, and especially where the bowels are confined, to add to it some warm aperient, as aloes or rhubarb. Most of our family gout-cordials are made upon this principle, and judiciously consist of some active aperient and the hottest aromatics dissolved in ardent spirits. And the patient who is subject to these attacks should never be without having something of this kind at hand, since the paroxysm often makes its onset without any warning. Yet he should resolutely forbear having recourse to any such medicine except in the time of necessity; for an habitual indulgence in any of them will still farther debilitate the affected organ, and indeed the entire system; and hence quicken the returns of the paroxysm, and render the stimulant antidote less availing.

Treatment of gout during the paroxysms. Some such cordial should be always at hand.

Most of the preparations of ether contained in the current Pharmacopœia of the London College, may be employed with benefit in the variety before us, and particularly in that icy coldness of the stomach, accompanied with a numbness of the limbs and a rapid palpitation of the heart, under which it occasionally exhibits itself. Phosphorus itself has sometimes been ventured upon in this case, in the proportion of two or three grains to a dose dissolved in double the proportion of ether; but I have never employed it, and cannot speak of its good effects. Musk seems in many instances to have been of decided advantage if given in sufficient doses, as well in gouty affections of the head as of the stomach. The case related by Mr. James Pringle is strikingly in its favour*, and seems to have induced Dr. Cullen to make trial of it in similar instances, who found it produce sudden relief by free doses repeated after short intervals; and this where the lungs as well as the head and stomach were the seat of transferred disease†.

Etherial preparations.

Phosphorus.

Musk.

External irritants may also be beneficially employed at the same time, and particularly those of rapid action, as the compound camphor liniment, sinapisms, and the burning of moxa, or coarse flax as recommended

External irritants.

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* Physical and Literary Essays, Vol. II. Art. xii.

† Mat. Med. Part II. Ch. VIII.

Gen. XII. Spec. III. γ A. Podagra. Treatment of gout during the paroxysms Opium internally as a sheet-anchor: in large doses. Exemplified.

by Hippocrates: at the same time the extremities, as already advised, should be plunged into the warm bath.

But our sheet-anchor is opium; and it should be given freely, and in union with some preparation of antimony, so as to act towards the surface generally, and thus restore to the living power its interrupted equilibrium. Small doses of opium will here be of no avail; and we may generally repeat or increase the quantity to a large amount with perfect safety. "In a case of the gout in the stomach," says Dr. Cullen, "I have by degrees gone on to the dose of ten grains twice a-day; and when the disease was overcome, the dose of opium was gradually diminished, till in the course of two or three weeks it was none at all: and in all this no harm appeared to be done to the system. We frequently find, that when a strong irritation is to be overcome, very large doses may be given without procuring sleep, or showing any of those deleterious effects that in other cases appear from much smaller quantities given. All this appears from the practice now well known in tetanus, mania, small-pox, gout, and syphilis *."

Remedial process in retrocedent gout. Local action when lingering in the extremities to be augmented by local irritants: light but generous diet: mild aperiants.

In retrocedent gout the same plan is to be pursued where the attack has actually shifted from the feet or hands to some internal organ. But where it still lingers in the extremities, though with slight pain and inflammation and frequent cessations, as though it were on the point of removal, we should increase the morbid action by local irritants applied to the joint, as camphor, ammonia, blisters, sinapisms, or the cautery of moxa or coarse flax; and at the same time prescribe a light, but generous diet, with rather more wine than the patient is in the usual habit of taking; carefully avoiding all violent cathartics, and keeping the bowels moderately open with rhubarb, aloes, or the compound colocynth pill.

Treatment during the intervals of gout.

In gout, however, the INTERVALS OF THE DISEASE are of

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* Mat. Med. Part II. Ch. VI.

as much importance to be attended to as its paroxysms: and here, also, the mode of management under the first form should differ essentially from that under the second: for though the occasional causes may in many cases be the same, they have in the former to operate upon a vigorous, perhaps upon an entonic scale of power, and in the latter upon a scale decidedly reduced and atonic.

Treatment of gout during the intervals.

In every variety all known occasional causes must be equally avoided. Where the diet has been too rich it must be lowered, and where too spare and abstemious, made more liberal. Indolence and a sedentary life must give way to regular exercise, and over-exertion of body or mind to repose and quiet. In the young, robust, and corpulent, whether the disease result from too great indulgence at the table, or an habitual taint, it may be requisite to abstain from animal food, wines, and fermented liquors altogether; but where the sufferer has passed considerably beyond the zenith of life, and the luxuries of the table have become habitual, his ordinary fare should be reduced or diminished rather than entirely commuted. And in every change it is better to proceed slowly than to rush rapidly from one extreme to another: since nothing has so great a tendency to prepare the internal organs for gouty paroxysms, as such sudden and violent transitions. The bowels should be kept in regular order, and the hour of rest be early.

Occasional causes to be avoided.

Changes in established habits to be made slowly.

A due and unswerving attention to these general rules of the hygiene will often be sufficient to keep those free from all disturbance of the gout for many years, and perhaps for the whole of their subsequent life, who have only known it in the form of a few regular paroxysms. But where the system, and especially the digestive function, is weak, and the patient has had anticipations of a tonic or recedent gout, or has actually suffered from its assaults, it will be necessary to superadd a course of INVIGORATING MEDICINES.

General rules of regimen sufficient where the general health is good:

but not so in delicate habits subject to the two last varieties.

There are three classes of remedies that generally pass under this name, stimulants, bitters, and astringents. The first increase the action, the two last augment the

Remedies in delicate habits subject to atonic gout.

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tone. Stimulants can rarely be employed alone, except in cases of emergency, for a lax state of fibres will bear little increase of action without, at the same time, suffering an equal increase of debility. But they may often, and in the case of gout perhaps always, be combined with astringents and bitters with great and decisive benefit. Upon this subject, however, I have already treated so largely under LIMOSIS DYSPEPSIA, OF INDIGESTION *, that it is only necessary to refer the reader to that part of the work for the present purpose.

Popular specifics for preventing gout formed of these: from Galen to Sydenham.

Most of the celebrated specifics for preventing a return of gout, have been formed of these classes of medicines in combination, and especially of bitters and aromatics: and it is singular that although the variety of them which nature offers to us is almost infinite, they have been employed with little change from the time of Galen and Cælius Aurelianus in the second century to that of Sydenham in the seventeenth. The famous powder purchased by the second Duke of Portland, who distributed its receipt for general use from the service it appeared to have rendered him, is formed for the most part of the very same ingredients, modified either from the Greek writers, or Dr. Sydenham's prescription; though it is a simplification of the latter, by omitting several of the articles that enter into its composition, one or two of which had better be retained. In this reduced form it consists of equal parts of the five following materials, finely powdered and intimately commixt: birthwort, gentian, germander, ground-pine, and the tops and leaves of the lesser centaury. The dose is a drachm taken fasting every morning for three months; after which it is to be reduced to three quarters of a drachm for three months longer; then to half a drachm for the remainder of the year: and after this the same dose is to be continued, every other morning only, through the next twelve months: by which time it is presumed that a cure will be accomplished.

Portland powder:

Its composition.

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* Vol. I. Class I. Ord. I. Gen. V. Spec. 7. p. 163.

Gen. XII. Spec. III. A. Podagra. Treatment of gout during the intervals. Real effects of such medicines doubtful from various causes. When mischief has followed, the disease may have produced it;

The real effect of this and similar medicines is very doubtful, and the doubt arises from the gradual mischief which a gouty diathesis has a tendency to produce in the corporeal system; and the benefit which the exact and abstemious regimen that is prescribed during the use of the Portland or any other course of bitter tonics, is calculated to afford of its own accord. In some instances such medicines seem to have produced little or no effect of any kind; in others the joint result of remedy and regimen seems to have been highly salutary; while in others again, the patients, though freed from open and decided fits of the gout, appear to have sunk gradually under complaints more distressing and fatal than the gout itself, as dyspepsy, lowness of spirits, and dropsies of almost every part, especially hydrothorax, ascites, and anasarca.

where good has followed, the regimen alone may have produced it: or the bitters alone according to the state of the body. Explained.

Now it is possible that the regimen alone may have produced the good, where good has been experienced, and the gouty diathesis the evil, where the evil has followed; or that the bitter tonics themselves may have done both, according as the individual to whom they have been administered has been in a proper or improper state of body for a trial of them: For, as most bitters are sedatives as well as tonics, and some of them direct narcotics, there can be no question that they have a tendency to prevent local inflammation in a vigorous and robust frame as well in a relaxed and debilitated. But tonics and even sedatives are as little called for in the former condition of body as they are demanded in the latter; and may perhaps prove as mischievous in the end as a sedentary life combined with prodigal eating and drinking. There must in both cases be too great an excitement of the sensorium, and secretion of sensorial fluid, and consequently too great an exhaustion of organic power with a perpetual tendency to torpitude in every part of the system. In both cases fuel is added to fire, and the constitution, if not bursting into open inflammation, seems to be equally consumed by a secret and smothered flame. The gouty diathesis is

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no doubt fed and confirmed; and as regular fits of gout are kept off probably by the sedative quality of the bitter tonics employed, we have reason to expect indigestion, low spirits, dropsy, and all the effects of high living although the latter is relinquished.

Hence great caution necessary.

I have thus endeavoured to account for the very different effect which tonics, and especially bitter tonics, appear to produce in different cases of gout, and to justify the caution with which they were given by the Greek physicians, as well as by later pathologists of high repute. They are not to be used indiscriminately: for while the relaxed and debilitated, those who are subject to atonic and retrocedent gout, may have recourse to them with great advantage, they will be sure to prove injurious to those of high entonic health, and who are distinguished by attacks of gout in regular but vehement paroxysms.

Some bitters more narcotic than others.

It is nevertheless easy to conceive that some bitters even among those in common use possess more of the sedative and narcotic principle than others; and where this is the case, though such may be fittest for employment in the first instance, they ought to be dropped for others of a different kind, as orange-peel, bark, columbo, and serpentaria, as soon as all local irritation has ceased. The strongest bitter we are acquainted with is the nux *vomica*, and the narcotic quality of this is known to every one. Opium possesses it in a still higher degree. It has of late been suspected to exist in wormwood, and been distinctly traced in the hop and some of the lettuce tribe.

All bitters alike in this respect according to Cullen.

Dr. Cullen, however, has taken a different view of this subject. He supposes all bitters to possess a deleterious quality of some kind or other; and that in all gouty persons, or at least he makes no distinction, they have a power of warding off fits of this disease; but that, from this deleterious property, when long persevered in, they weaken the stomach and other organs of digestion, to which at first they gave tone; and thus ultimately induce the diseases we have just noticed, and which are too apt

And hence all injurious to all patients.

to follow upon a debility of these viscera. And in proof of this opinion, he tells us of the fate of nine or ten persons who had been liable for some years before to have "*a fit of a regular or very painful inflammatory gout*, once at least and frequently twice in the course of a year; but who, after they had taken the Portland powder for some time, were quite free from any fit of inflammatory gout;" and, having completed the course prescribed, "had never a regular fit nor any inflammation of the extremities for the rest of their life. In no instance, however," continues Dr. Cullen, "that I have known, was the health of these persons tolerably entire. Soon after finishing the course of their medicine they became valetudinary in different shapes, and particularly were much affected with dyspeptic, and what are called nervous complaints, with lowness of spirits. In every one of them, before a year had passed, after finishing the course of the powders, some hydropic symptoms appeared, which, gradually increasing in the form of an ascites or hydrothorax, especially the latter joined with anasarca, in less than two or at most three years, proved fatal. These accidents, happening to persons of some rank, became very generally known in this country, and have prevented all such experiments since*."

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Instances appealed to in proof of this.

No testimony could be more confirmatory of the hypothesis I have ventured to lay down respecting the different effects of a tonic plan in different constitutions than the present. For the cases are taken entirely from persons who, upon this hypothesis, would entail upon themselves the very evils which are here described. And as Dr. Cullen gives us no account of any mischief that has followed the use of bitter tonics in constitutions of an opposite character, or marked by general debility and atonic gout, the evils he has described seem, on his own evidence, to be limited to those whom we have already cautioned against the employment of such a

But such instances prove the contrary when nicely examined.

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[*] Mat. Med. Part. II. Ch. II.

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course. No proper classification or line of distinction seems to have been drawn or adhered to; which would probably have presented us with very different results if it had been; and have superseded the clashing and unsatisfactory explanation of atonic effects uniformly produced by a continuance of tonic medicines.

The subject requires further examination.

That bitters are not universally injurious evidenced from the use of hop in table-beer.

The subject, however, requires to be further examined into by a more accurate classification of gouty patients who may be put under the influence of medicines of this kind; and I throw out the hint for this purpose. Yet, that a persevering course in bitter tonics does not uniformly prove in any way injurious to those who engage in it, is I think demonstrable from the daily use of table-beer in almost every family throughout the country, and its appearing to be one of the wholesomest beverages we can adopt. Dr. Darwin, indeed, ventures to ascribe part of the mischief produced by highly spirited malt liquors to some noxious quality in the hops they contain; but the stronger and headier malt liquors are uniformly prepared with a much smaller proportion of hops than the weaker, and especially than those which go under the name of table beer. For the only point aimed at by the employment of hops is to prevent an acetous fermentation; which is effectually guarded against by the larger proportion of spirit contained in ale and strong beer; but which every one knows would soon take place in table-beer if it were not powerfully impregnated with this grateful bitter. And hence the remark of Dr. Darwin seems to have no foundation whatever, since the stronger bitter affords a beverage proverbially wholesome; while the weak bitter is that which proves injurious.

Specifics for a sudden cure of the paroxysm.

Such from the time of the Greeks:

There have also, in all ages, been offered to the public specifics for the sudden cure or removal of the paroxysm when present, as well as for preventing its return hereafter. Lucian, in his Tragopodagra, gives us with great humour, a list that occupies a page of such as were chiefly in vogue in his day; and the catalogue is certainly not diminished in our own. Those that have

GEN. XII. SPEC. III. A. Podagra.

Treatment of gout by reputed specifics.

acquired the highest reputation appear to have been composed of some species of hellebore, or of meadow-saffron; the first of which is among the remedies quoted by Lucian; though it is probable that the ῥίζαν ῾ΕΛΛΕΒ΄ΟΡΟΥ of the Greeks was a different plant from either the white or black hellebore of modern dispensatories.

and many of them the same to the present day.

Hellebore. Meadow-saffron.

Husson's Eau medicinale; Vinum-colchici.

The favourite specifics of the present day are M. Husson's Eau medicinale, and the vinum colchici, or wine of meadow-saffron, introduced in the current Pharmacopœia of the London College, chiefly upon the authority and recommendation of Sir Everard Home. The exact components of the former are kept a secret; though its basis is well known to be either the one or the other of the above plants, most probably the meadow-saffron. The effects of the Eau medicinale and of the colchicum-wine do not essentially differ; for after taking about sixty drops of either the pulse becomes slower, and at length sinks, in about twelve hours, from ten to twenty strokes in a minute below its natural number, at which time the inflammation subsides. The action of both medicines is accompanied with great languor and a deadly nausea or sickness, which terminates in vomiting, or a discharge from the bowels, or both. If the dose be in a small degree in excess, the symptoms are syncope, cold sweat, extreme prostration of strength, violent vomiting and purging, a wiry and almost imperceptible pulse, or a state of utter and very alarming insensibility. And in some constitutions these effects have followed from the use of even a common dose. So that these preparations seem to be rather stronger drugged than the celebrated oxymel colchici of Stoerck.

Effects alike, probably from like components.

Trials of colchicum-wine by Sir Everard Home.

Sir Everard Home made several trials of the colchicium wine on a dog, both by the stomach and by infusing it into his jugular vein. From thirty drops he recovered in about seven hours; from sixty drops in eleven; but a hundred and sixty drops, thrown into the jugular vein, killed him, after having suffered great agony, in five hours. On opening him, the stomach, smaller intestines, GEN. XII. SPEC. III. A. Podagra. Treatment of gout by reputed specifics. Whether acts by a specific power,

and colon were highly inflamed*. And it is hence obvious that this medicine, like many other emetics and cathartics, acts rather upon the stomach, through the medium of the circulation, than on the system through the medium of the stomach. It is possible that the colchicum may act by a specific power on the peculiar inflammation of a regular fit; yet as other intestinal irritants have occasionally produced a like effect, and particularly the gratiola *officinalis* (hedge-hyssop) and ranunculus *Flammula*, the disappearance of the paroxysm may also be ascribed to a transfer of action to the stomach and intestines. Generally speaking specifics operate by a secret and inexplicable power, as the bark in intermittents, the vaccine virus in shielding the constitution against small-pox, and mercury in syphilis; for though a ptyalism gives proof that the system is impregnated with the last, there are few practitioners so attached to the Cullenian doctrine in the present day as to contend that the venereal virus is carried off by the salivation, since we are perpetually beholding it carried off under the influence of mercury without any salivation whatever.

If a specific power over the paroxysm, such medicines have none over the diathesis: and hence may be of temporary use at a great expense of the constitution.

Admitting yet, that the colchicum has a specific power over a regular inflammatory paroxysm of gout, it is clear that it has no such power over the gouty diathesis, since the paroxysm has never been so removed as not to return again. And it hence becomes a serious question, whether the mischief produced in the constitution by the employment of such violent means be not greater than the temporary good obtained by the suppression of the inflammation? and I do not think that either the Eau medicinale or the colchicum-wine have been noticed with a sufficient degree of discrimination fairly to determine this point.

More discriminate trials required. But ought never to be tried except in entonic gout,

From the rapidity and force of the operation, it is clear that they ought never to be tried except in the first variety of gout, or where the system is firm and healthy, and the disorder shows itself in a regular fit. And as it

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* Phil. Trans. 1816. Art. xii. xiii.

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is highly desirable, for reasons already stated, to restrain the violence of the paroxysm, shorten its duration, and carry it off as soon as possible, the use of the one or the other of these medicines may be judicious so long as the system is able to recover itself with speed from their influence, and provided the patient limits himself to the smallest dose that will answer the purpose.

Have been often tried improperly;

Yet these medicines, from too little attention to their real effects, and from a mistaken idea that they are a specific for gout under every form, have not been confined to the entonic variety, but have been very generally employed also in the second and third varieties as well; in which the system, and particularly the digestive organs, are in a state of chronic debility, and the inflammatory fit, when it shows itself in the hands or feet, is incomplete and evanescent. In all such cases, such medicines cannot fail to do serious injury to the constitution; they must of necessity increase the ventricular weakness, and hereby render the system more open to all the miseries which gout is so perpetually entailing. And hence the reason of the very general complaint among those who have tried these remedies, that, although they remove the fit at the time, they shorten the intervals, and render their frames more obnoxious to relapses.

and hence made productive of serious injury.

Plan of compression and percussion.

The subject must not be quitted without a brief glance at Dr. Balfour's proposed mode of treatment, which consists in the use of compression and percussion alternately applied to the inflamed gouty joint; as they are applied in like manner to parts labouring under acute rheumatism or any other kind of inflammation. The operator is directed to seize the aching foot forcibly, by grasping the ball of the toe in his right hand, and gradually to increase the pressure, and continue it till the impetus of the vessels has yielded to the greater impetus of the hand; only occasionally letting go his grasp for the purpose of interposing a discipline of *gentle* percussion as it is called.

Never tried by the author.

This plan I have never tried, for I have never been able to summon fortitude enough to propose the addition

Gen. XII. Spec. III. A. Podagra. Treatment of gout by compression and percussion.

of a remedial torture to that already endured from the disease; nor do I think I have ever attended a patient who would have consented to the advice if I had given it. The direct object is to overcome the inflammatory action by constringing the vessels; but this effect is more readily obtained, and in a far easier way, and with quite as little risk, by cold water. If in the course of the compression the inflammatory action do not soon yield, it should certainly be relinquished; for a violent re-action will accompany the resistance, and the inflammation be greatly augmented. I have seen one or two striking examples of this on applying the same method to inflammations of other kinds. A young woman with a small ulcer in the leg of about three months standing, which, apparently, had continued open merely from neglect, was received not long since as a patient into a public establishment of this metropolis, and a tight compressing bandage applied to the entire limb. A forcible re-action ensued, the local irritation extended, the leg swelled in spite of the bandage, and the pain was acute. A few palliative means were interposed, but the compressive plan was still persevered in: the inflammation spread deeper and wider, gangrene soon followed, and the patient died within three weeks from the commencement of the trial.

Pleasanter plan proposed by Linnéus, and in his own person successful.

Linnéus pursued a far more inviting specific for the cure of the gout, in his own person, which was that of eating strawberries. The story is pleasantly told by M. Hedin in the Amœnitates Academicæ. And having in this agreeable manner driven away the paroxysm by which he was then assaulted, he persevered in the same mode of relief through five other fits which attacked him annually, every attack however being slighter than the preceding; till, by persisting in the same fruit, the disease, it is said, did not show itself for nearly twenty years. We are told in some of the foreign journals of like cures being effected by eating sour cherries. And, as astringent tonics are often as useful as bitter tonics, it is possible that the gouty diathesis has, in some instances, been checked or subdued by acids of various kinds, though we should be often deceived if we placed any dependance upon them.

GEN. XII. SPEC. III.

SPECIES IV.

ARTHROSIA HYDARTHRUS.

White-Swelling.

TENSE, PERMANENT, COLOURLESS SWELLING, CHIEFLY OF THE LARGER JOINTS: INFLAMMATION SLOW, AND DEEP-SEATED: PAIN FIXT AND SEVERE: IMPERFECTLY SUPPURATIVE: FEVER A HECTIC.

GEN. XII. SPEC. IV.

Relation of the present species to the preceding two.

THIS inflammation, like that of rheumatism, attacks the larger rather than the smaller articulations. Yet, as the joints are uniformly the seat of its assault, and it runs through its course without the production of genuine pus, however severe its symptoms and fatal its termination, it has a manifest relation to the two preceding species, and ought to be arranged under the same genus.

Here also a peculiar predisposition;

sometimes in robust frames;

sometimes in relaxed, exhibiting two distinct forms.

The ordinary occasional cause is a strain, or some other injury to the joint affected; but this cause does not equally operate in all persons to the production of such a result; and it is hence obvious that there is, as in the case of gout and rheumatism, a predisposition or peculiar diathesis favouring the origin of hydarthrus, existing in some individuals to which others are strangers. And we find this predisposition showing itself also, as we have already seen, in the podagric diathesis, both in persons of a strong, robust, and entonic state of health, and in persons of relaxed and inelastic fibres, particularly in those who inherit a scrophulous taint. And hence the disease exhibits itself under two distinct forms; seats itself in different parts of the joint, and demands a very

GEN. XII. SPEC. IV. Arthrosia Hydarthrus. White-swelling.

different mode of treatment. The varieties therefore are the following:

α Entonicus. Entonic White-Swelling.
β Atonicus. Atonic White-Swelling.

α A. Hydarthrus entonicus. Entonic white-swelling.

The FIRST VARIETY is the rheumatic white-swelling of Mr. B. Bell, who has treated of the disease very fully and very judiciously in his work on ulcers*. It occurs, indeed, as he remarks, most frequently in young plethoric people in whom the rheumatic diathesis is predominant: or rather that firm elasticity of health and fibre, which, upon the application of accidental causes, gives rise to rheumatism as well as to the present variety of hydarthrus: and on this account the epithet of entonic is preferred to that of rheumatic.

Existing causes.

These causes I have stated to be chiefly strains, and other external injuries to the larger joints, as bruises and luxations: but, like rheumatism, it is also frequently excited by a current of cold damp air. The pain is diffused, the swelling considerable from the first, and the inflammation, on dissection, is found to originate and be chiefly seated in the synovial membrane and surrounding ligaments of the joints: though, according to Mr. Brodie, it sometimes commences in the circumambient cellular substance†. The intumescence feels tense and elastic, but there is little discoloration at any time. From the increased and morbid action of the vessels there is not much effusion of coagulable lymph, but a considerable surplus of synovial fluid, not less than four ounces of which was discharged in a case related by Dr. Simson, by making an opening through the integuments and synovial membrane. The occasional cause was in this instance of a singular kind; for it consisted of a small supernumerary bone, somewhat above the size of a kidney-bean, which lay loose in the knee-joint and

Descrip-tion.

Singular instance.

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[*] Treatise on Ulcers with a Dissertation on White-swellings, &c. 8vo.

[†] Pathological and Surgical Observations on Diseases of the Joints, 8vo. 1818.

was covered with cartilage. At first it seems to have been attached, for the patient does not appear to have noticed it till about the commencement of the inflammation, when he frequently felt it, as a hard body of whose nature he was ignorant, immediately under the patella, generally on the inside, but sometimes on the opposite, and could get no ease till by chafing the joint with his hand he made it disappear. Upon a removal of the preternatural bone by an incision and an evacuation of the synovia, the patient appears to have been instantly relieved; for, contrary to the advice of Dr. Simson, he shortly afterwards mounted his horse and rode home through a distance of two miles and in a frosty night. But he had soon reason to repent of his imprudence, for he caught cold, and suffered excruciating pain from inflammation, and did not recover the full use of his limb for nearly a twelvemonth. A caustic applied to the part and kept open seems to have been of essential service *.

Progress of the disease.

The inflammation, if not checked at its commencement, soon extends into the cellular substance and even the integuments, but rarely in this variety affects the bone: but it has as little tendency to the adhesive as to the suppurative character, and hence the effused fluid runs in every direction, and, from losing its finer parts by absorption, becomes viscid and glairy, and occasionally exhibits a congeries of hydatids. If, however, the inflammation proceed farther and the integuments be affected, pus is also secreted; the periosteum is ulcerated, and the bone itself rendered carious; so that on an examination, by dissection, the interior of the joint displays a confused union of different materials and substances blended into a common mass.

Prognostics.

It is rarely that this variety is taken notice of so soon as it should be; for when a strain occurs in the knee or elbow of a robust and high-spirited school-boy, he will

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* Edinb. Med. Essays, Vol. IV. Art. XX.

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generally rather suffer the pain it produces as long as he can, than run the risk of an abridgement to his liberty. When, however, the disease produced by such accident is taken in hand soon, it will usually yield in a few weeks to the application of leeches, succeeded by a repetition of blisters, which, if the joint be the knee or ancle, should be accompanied with a reclined position; for perfect quiet is of the utmost importance, and the joint should be kept as much as possible free from motion. If the swelling and inflammation should nevertheless proceed, the pain augment, a fluctuation be perceptible, and relaxing cataplasms have proved of no avail, the joint must be opened by a seton, which should be of sufficient depth and length to form an exit for the purulent fluid now contained in all the little abscesses that constitute the disease, and which are generally separate from each other.

The bone not readily affected.

As the bone does not readily become affected nor even the periosteum, the joint may in this manner often be preserved and restored to use. A very considerable degree of stiffness, indeed, will commonly remain long afterwards; but which in most cases will gradually yield to friction with the hand alone, or, which is better, illined with warm oil (and the animal oils are for this purpose preferable to the vegetable), continued for an hour at a time and repeated at least twice a-day. The rigidity, indeed, is owing, in almost every instance, to the motionless state in which the flexor-tendons have been kept for many weeks, and not to any inflammation that has extended itself to them, which, in nineteen cases out of twenty, according to Mr. Bell's calculation, never takes place: and still less are we to fear such a result from an union of the ends of the adjoining bones, in consequence of the abrasion of their surrounding cartilages; or from an inspissation of the synovial fluid by which they are surrounded. For it has already been observed that such abrasion rarely or never happens but in a very late stage of the disease; while it is very uncertain that such a

Rigidity in most cases confined to the tendons, and capable of removal on cure of the disease.

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state of the synovia as is here alluded to takes place at any time. And hence no such apprehensions should slacken our endeavours to remove the stiffness of the joint by a long course of friction and emollient applications. When the use of the seton has produced no benefit, and the bone has manifestly become carious, our last resource is amputation.

β A. Hydarthrus atonicus. Atonic white-swelling. Description.

The ATONIC VARIETY commences, and consequently is chiefly seated, in the bone itself of the affected joint, originating, as Mr. Brodie observes, in its cancelli *. The pain, therefore, is here more circumscribed, and appears to shoot almost from a point, and the swelling is inconsiderable. The pain, however, though more limited, is very acute, and increased by the least attempt at motion; so that, in this case also, the muscles being always kept quiet and in a bent position, a stiffness of the joint is readily superinduced.

Progress of the disease.

The inflammation proceeds more slowly than in the entonic form, but it produces at length the same effect; the tumour acquires the same elastic feel; varicose veins appear on the surface, and collections of matter take place in different parts of it. The minute and separate abscesses burst one after another, and discharge an ichorous or cheesy and purulent fluid, and small exfoliations of the subjacent bone are occasionally thrown out at the openings. This variety constitutes the scrophulous white-swelling of Mr. Bell; and, if not always confined to scrophulous subjects, are most common to those who give proofs of this diathesis, or of an approach to it. "I conceive all such collections of matter," says Mr. Hunter, "to be of a scrophulous nature: they are most common in the young subject, and seldom found in the full grown or old. The suppuration is not proper pus, nor the swelling proper inflammation †."

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* Patholog. and Surg. Observ.

† On Blood, &c. p. 391.

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ε A. Hydarthrus atonicus.
Atonic white-swelling.
Occasional causes.

The occasional causes are sometimes those of the preceding variety; but the disease more generally commences without our being able to trace any occasional cause whatever: and is far more disposed than the preceding to terminate in a fatal hectic.

Treatment.

The practice is most disheartening and the prognostic most melancholy. No course of medicine promises much success; while even a removal of the limb may only lead the way to an appearance of the disease in some other joint. The pain may be soothed with opium; and local stimulants have been found useful in an early stage of the disease, or where the diathesis is not decidedly scrophulous. Of the last class of medicines almost every preparation has been tried in its turn according to the inclination of different practitioners: as solutions of muriated ammonia, sometimes commixed with acetic acid; essential oil of turpentine; camphor; acetated ammonia; tincture of cantharides; mezereon in various forms; mercurial or other irritant emplasters; the actual cautery both by moxa and heated irons; fumigations and the vapour-bath impregnated with essential oils; setons, and electricity *. While internally have been administered the compound decoction of sarsaparilla, hemlock, pulsatilla nigra, and various preparations of almost all the metals †. Where these fail, and they fail too often, our only resource against the certain destruction of hectic fever is amputation, however doubtful its issue. Dr. Akenside thought he derived advantage from large blisters, freely kept open, in conjunction with the internal

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* Heister, Wahrnehmungen B. I. Wendt, Nachricht von dem Institutum clinicum. De Meza, Anhang zer Strack Abh. von der Petetschenkrankeit. Plater, Observ. L. III. p. 704. Bromfield's Observations. Kirkland on the present state of Surgery. Percival, Med. Com. Edin. VII. 67.

† Proett, Versuche einer Chirurg. Gesillschaft in Kopenhagen. Baylie, Pract. Essays. Michaelis, in Richter, Chir. Bibl. B. V. p. 113. Stoerck, von der Schwarzen Küchenschelle, p. 82.

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ϛ A. Hydarthrus atonicus.
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Treatment.

use of calomel: but he candidly admits that nothing can be expected even from this treatment, or indeed any other treatment, where the disease has made much progress, or if "there is any sensible collection of a fluid within the joint." In two or three of the cases he has described, the tumour, when in an incipient state, seems to have been quite as favourably acted upon by the attack of some unforeseen exanthem, as small-pox or miliary eruption, as by any topical plan whatever *.

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* Med. Trans. Vol. I. p. 104.

CLASS III.

HÆMATICA.

ORDER III.

EXANTHEMATICA.

Eruptive Fevers.

CUTANEOUS ERUPTIONS ESSENTIALLY ACCOMPANIED WITH FEVER.

Class III. Order III. Origin of the ordinal name. Ordinary limitation of import.

In what sense proposed by Cullen: how used by Willan.

The term Exanthemata among the Greeks, from ἐξανθέω, "effloresco," "per summa erumpo," "to effloresce, or break forth on the surface" imported cutaneous efflorescences or eruptions *generally*. It has since been limited to express cutaneous eruptions *accompanied with fever*, a boundary assigned to it by Sauvages, Linnéus, Vogel, Sagar, Macbride, Cullen, and various others, and this, in effect, is its general meaning in the present day. Dr. Cullen, however, in his note on Exanthemata, thinks it worth considering whether the word should not be restrained to eruptions (he does not say *febrile* eruptions) produced alone by specific contagion: "eruptiones à contagione specificâ ortæ;" while Dr.

Willan has still more lately narrowed it so as to include those eruptions only which fall within the meaning of the English term RASH, whether febrile or not febrile.

CLASS III. ORDER III. Exanthematica. Eruptive fevers.

The two last senses of EXANTHEMATA, or EXANTHEMATICA, are new and singular. Dr. Cullen, however, has not followed up his own suggestion into his own classification; while Dr. Willan has not always continued strictly true to his own views and definition, as I have observed in the running comment introductory to the present order in the volume of Nosology to which the reader may turn, for a fuller examination of this subject, at his leisure.

In the present work employed in its common sense.

The term, therefore, in the present work, is employed in its common and current sense, so as to include all cutaneous eruptions in which fever exists as an essential symptom; whether accompanied with or destitute of contagion; which last is a doubtful and perhaps inappropriate ordinal character. Doubtful because we cannot very precisely tell where to draw the line; and inappropriate because it is a character that applies to diseases of very different kinds, and that are scattered over the entire classification, as dysentery and influenza in which there is fever without cutaneous eruption; itch, and many varieties of tetter, in which there is cutaneous eruption without fever, and blennorhœa or clap in which there is neither fever nor cutaneous eruption. The genera included in the order are distinguished by the nature of the eruption as consisting of red, level or nearly level patches of pimples filled with a thin ichorous fluid; of pimples filled with a purulent fluid; and of foul imperfectly sloughing tumours; and hence consist of the four following:—

1. ENANTHESIS.	RASH EXANTHEM.
2. EMPHLYSIS.	ICHOROUS EXANTHEM.
3. EMPYESIS.	PUSTULOUS EXANTHEM.
4. ANTHRACIA.	CARBUNCULAR EXANTHEM.

General character.

Each of these, with the exception of the third, comprises several species: and all concur in evincing the

Class III. Order III. Exanthematica. Eruptive fevers.

existence of morbid and specific poisons in the blood, acting the part of animal ferments, converting the different fluids into their own nature, exciting the commotion of fever, and being eliminated on the surface, as the best and most salutary outlet to which they can be carried, by the very fever which they thus excite.

Evincing proofs of instinctive or remedial power.

The whole is a wonderful circle of morbid and restorative action, evincing the most striking proofs of that instinctive or remedial power of nature whose presence in every part of every living frame, whether animal or vegetable, is continually discovering itself; and, which, under the general control of an infinite and omniscient Providence, is perpetually endeavouring to perfect, preserve, and repair the individual, and to multiply its species.

Illustrated.

We have many times had occasion to observe, that wherever any diseased action is taking place internally, there is a constant effort exhibited in the part or in the system generally, to lead it to the surface where it can do least mischief*, rather than let it spread itself on the deep-seated or vital organs where its effects might be fatal. Mr. John Hunter was peculiarly fond of dwelling on this admirable economy of nature, and of illustrating it from the course pursued in inflammations of every kind†; which, to obtain this beneficial end, often wind their way outwardly through a multiplicity of superincumbent organization, instead of opening into some momentous cavity in the interior, from which it is perhaps only separated by a thin membrane. But there is no part of pathology in which this display of a final cause, of an operative intention admirably adapted to the end, is more striking than in the order of eruptive fevers.

Eruptive fever a natural mean of curing the eruption.

It is by means of the fever that the disease works its own cure; for it is hereby that a general determination is made to the surface, and the morbid poison is thrown off from the system.

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* See especially Class II. Ord. II. On Inflammation, p. 238.

† On Blood, Inflammation, &c. pp. 236. 450. 467.

Class III. Order III. Exanthematica. Eruptive fevers.

But the fever may be too violent; and, from accidental circumstances, it may also be of the wrong kind: both which facts occasionally occur in inflammations, and require the art of medicine for their correction.

But if violent more mischievous than the eruption.

Hence a small degree of fever only necessary.

Error of earlier practitioners in encouraging fever.

When a febrile poison, producing a cutaneous eruption is generated, or has been conveyed into the blood, a small degree of fever is sufficient to throw it upon the skin; and if it exceed the proper extent, the specific virus will be multiplied, and the fever itself may become a source of real danger. It was formerly the practice to encourage the fever by cardiacs, a heated atmosphere, and a load of bed-clothes, from an idea that we hereby solicit a larger flow of morbific matter from the interior to the surface. The fact is unquestionable; for be the exanthem what it may, the skin will hence, in almost every instance, be covered with eruption. But it did not occur to the pathologists of those times, that the morbid virus was an animal ferment, capable of multiplying itself by accessories; and that heat and febrile action, beyond a very low medium, are among the most powerful accessories we can communicate. And hence the advantage of the modern practice of applying cold water in scarlet-fever, and cold air in small-pox, with a view of mitigating the fever that often accompanies these diseases: for, by diminishing the febrile violence, we do not, as was formerly imagined, lock up the contagion in the interior of the system, but prevent it from forming afresh and augmenting there.

Examples of correction in modern times.

Fever may be of the wrong kind, as well as in excess.

But the fever, though the natural mode of cure, may not only be too violent, but it may be also of the wrong kind. And here, again, the whole scope of professional skill is often demanded.

Different contagions are accompanied with different fevers.

Some of the morbid poisons we are now adverting to have a natural tendency to excite a fever of one description, and others of another. Thus, the fever of small-pox and measles is ordinarily inflammatory; that of scarlet-fever may commence with an inflammatory type, but it has a strong tendency to run into a typhous form:

Class III. Order III. Exanthematica. Eruptive fevers.

while that of pemphigus and plague is typhous from the beginning.

Constitution of the year often produces great influence.

Much also, in this respect, will depend upon accidental circumstances, as the constitution of the year, and the prevailing epidemic; the constitution of the patient, his habit of life, or hereditary predisposition. For under the control of these we sometimes see an eruptive fever, having naturally a typhous turn, restrained in its tendency; and, on the contrary, a fever with an inflammatory turn, as in small-pox or measles, converted into a malignant or a typhous. Yet the general intention pursued by the instinctive or remedial power of nature is one and the same: and it is the duty of the medical practitioner to watch over that intention, and co-operate with it; to moderate the natural means when in excess; to quicken them when deficient; and to correct them when deflected by accidental circumstances.

GENUS I.

ENANTHÉSIS.

Rash Exanthem.

ERUPTION OF RED, LEVEL, OR NEARLY LEVEL PATCHES; VARIOUSLY FIGURED; IRREGULARLY DIFFUSED; OFTEN CONFLUENT; TERMINATING IN CUTICULAR EXFOLIATIONS.

GEN. I. Origin of the generic name.

THE term enanthésis is derived from the Greek ἐν "in, intra," and ἀνθέω "floreo"—"efflorescence from within or from internal affection." Whence the term stands opposed to exanthesis, which, in the present system, constitutes a genus under the sixth class, and comprises such efflorescences as are merely superficial or cutaneous, and not necessarily connected with internal or constitutional affection. Enanthesis is here, therefore, used to express fever accompanied with rash, the latter word being employed in the broader of the two senses assigned it by Dr. Willan, as importing red, irregular, confluent patches, whether simple, as in the case of scarlet-fever, compounded of papulæ, small acuminating elevations of the cuticle, not containing a fluid, as in the case of measles; or existing in the form of wheales, as in that of nettle-rash.

In what sense employed.

And hence enanthesis, as a genus, furnishes us with three species:—

1.	ENANTHESIS	ROSALIA.	SCARLET-FEVER.
2.	————	RUBEOLA.	MEASLES.
3.	————	URTICARIA.	NETTLE-RASH.

SPECIES I.

ENANTHÉSIS ROSALIA.

Scarlet-Fever.

RASH, A SCARLET FLUSH, APPEARING ABOUT THE SECOND DAY ON THE FACE, NECK OR FAUCES; SPREADING PROGRESSIVELY OVER THE BODY; AND TERMINATING ABOUT THE SEVENTH DAY: FEVER A TYPHUS.

GEN. I. SPEC. I. The scarlatina of most modern writers.

THIS is the SCARLATINA of most modern writers; a barbarous and unclassical term that has unaccountably crept into the nomenclature of medicine upon the proscription of the original, and more classical name, of ROSALIA, which it is the author's endeavour to restore.

The term generally disapproved of.

Upon this subject I must refer the reader to the running comment in the volume of Nosology, where he will find it explained at full length. At present it is sufficient to observe that although, since the introduction of scarlatina, its use has been generally tolerated, no classical scholar has been satisfied with the term; while several have peremptorily refused to adopt it.

By Morton: by De Haen. Evaded by Huxham and Heberden.

Dr. Morton had so mortal an aversion to the term, that he preferred the error of blending scarlet-fever with measles, and of arranging the varieties of the two diseases under the common generic name of MORBILLI to employing *scarlatina*. De Haen appears to have had nearly as great a dislike to it *. Dr. Huxham, for a long time, eluded the term by using FEBRIS MILIARIS RUBRA, or MALIGNA, for some of the varieties of scarlatina, and FEBRIS ANGINOSA MILIARIS for others: Dr. Heber-

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* Med. Contin. Tom. I. Cap. VII.

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den has still more lately exchanged it for FEBRIS RUBRA; and Thiery, in direct allusion to the original name, calls it expressly *mal* de la ROSA*; Dr. Willan continues scarlatina, but thinks it necessary to apologize for its continuance. The denomination scarlatina," says he, "was first applied to this disease by British writers: however offensive the term may be to a classical ear it cannot well be displaced, having found admission into all the systems of nosology. Another age will correct and refine the language now used in subjects untouched by the masters of Physic†."

Exchanged for mal de la Rosa.

Apologized for by Willan.

It will not be the present author's fault if the correction, so generally called for in the case before us, should be postponed to another age; or the error complained of be chargeable on future nosologists.

The term scarlatina derived from the Levant.

In saying that "the denomination scarlatina was first applied to this disease by British writers," Dr. Willan can only mean that it was by British writers first applied *technically* and introduced, as a professional term, into the Medical Vocabulary: for the term itself is Italian, and was long, as a vernacular name, in use on the shores of the Levant before it was imported into our own country.

Scarlet-fever, measles and small-pox introduced from the East: comparatively of modern date.

Not to be found in the Greek writings.

Vernacular names first applied at Cordova.

Scarlet-fever, measles, and small-pox seem, indeed, equally to have reached us from the East, and to be diseases of comparatively modern origin. Some writers fancy that they can distinguish a few traces of one or two of these in the works of Paulus Ægina, and other Greek physicians; but the passages referred to are too general and imprecise to establish any such conclusion. No such diseases are described; and had they existed at the time, a few determinate and scattered hints, which may apply to other diseases as well, could not have been the whole to which they would have given rise. The names, indeed, by which they were at first known, as VARIOLA, RUBEOLA, or rather RUBIOLA, ROSALIA, and even MORBILLI, evidently point to the school of Cordova, and lead us to the Arabian or Saracenic physicians for our first account of them. And it is not to be wondered at that in such accounts we should meet with some degree of confusion and many inaccuracies; and should perceive that as measles were for a long time confounded with small-pox, so scarlet-fever was with measles; whence it is difficult, in one or two instances, to determine what is the precise species of disease referred to by Avicenna, Haly Abbas and Rhazes: for while they seem to allude to the scarlet-fever, we are not sure that they mean it.

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* Recueil Periodique. II. 337.

† Cutaneous Diseases, p. 253.

At first used indiscriminately or with confusion.

On this account it is that rosalia, rossalia and rubeola, alike derived from the colour of the efflorescence, are, among the earliest writers who used these terms, applied equally to scarlet-fever and measles; and when some distinction was at length attempted by the introduction of the word *morbillo*, or morbilli, in like manner a Spanish or Cordova diminutive, the line of distinction not being accurately drawn or adhered to, this term was also erroneously applied to both; and the confusion became more intricate. So *rougeole*, which among the French writers is the common name for measles, imported also, at one time, scarlet-fever: and this so generally that, when in process of time physicians became sensible of the difference between the two maladies, and it was necessary to establish distinct terms, we learn from Chevenau that, among the Marsellois, *rougeole* was at first appropriated to the scarlet-fever, while the measles were denominated *senapion* *. And, in this manner, both diseases continued in every country till within the last half century, to be regarded and even treated of with but little discrimination; sometimes as different species, sometimes as a common species, and sometimes as varieties of a common species. And hence, even in our own country, we find them united in

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* Observ. Med. p. 454.

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several of their varieties, not only in the writings of Dr. Morton, but still more lately in those of Sir William Watson.

Rosalia sometimes considered under unnecessary subdivisions.

Since, however, they have been considered, and most correctly, as different diseases, another extreme has been run into; for rosalia itself has been broken into subdivisions that are in no respect worth contemplating separately; one or two of which, as we shall perceive presently, have themselves been elevated by some pathologists into the rank of distinct maladies. For all the purposes of perspicuity it will be sufficient to study it under the two following varieties;—

α Simplex. Simple scarlet-fever.	Fever moderate, and terminating with the rash; little prostration of strength: slightly contagious.
β Paristhmitica. Scarlet-fever with sore throat.	Fever severe; throat ulcerated; rash later in its appearance, and less extensive; often changing to a livid hue: highly contagious.

α E. Rosalia simplex.
Simple scarlet-fever.
Description.

Children are by far the most frequent subjects of both these varieties, and communicate it readily to each other. They are both occasionally epidemic, and in this form occur most usually at the close of the summer. The anticipating symptoms are those of fever; about the second day from which, in the FIRST VARIETY, numerous specks or minute patches of a vivid red colour appear about the face and neck; and within twenty-four hours a like efflorescence is diffused over the surface of the body, and occasionally even tinges the inside of the lips, cheeks, palate and fauces. Sometimes the efflorescence is continuous and universal; but more generally on the trunk of the body, there are intervals of a natural hue between the patches, with papulous dots scattered over them. There is an exacerbation in the evening, at which time the rash is most florid, as it is least so in the morning. In some

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cases that have occurred to me it has only shown itself in the day time in the form of scattered patches, or even specks, though the skin has been very generally roughened and rendered anserine from a more than usual determination of blood to the cutaneous papillæ. Yet even in these cases the pathognomic efflorescence has appeared in a greater or less degree in the evening. On the fifth day the eruption begins to decline; the interstices widen, and the florid hue fades. On the sixth the rash is very indistinct, and is wholly gone on the seventh.

Symptoms seldom alarming in this variety.

The pulse, during the eruptive stage, is usually very quick and feeble; the tongue is covered with a whitish fur in the middle, often interspersed with scarlet points from an elongation of the turgid papillæ; while the sides of the tongue are of a dark red. The face is considerably tumefied; and there is great anxiety and restlessness, with a sense of tingling or itching in the skin, and sometimes at night a slight delirium. Though the fever is in most cases moderate, it sometimes runs high, but in the present variety is rarely alarming. In many cases, indeed, the eruption appears and passes through its course with little inconvenience of any kind from fever, itching, or restlessness.

Period of efflorescence variously fixed.

Sauvages, and Cullen, who has copied Sauvages's definition, represent the efflorescence as not taking place till the fourth day after the attack. Dr. Heberden, on the contrary, fixes it on the first or second day*: Dr. Willan, "usually on the second day." This last is the ordinary period, and as such I have entered it in the definition. It is obvious, however, that the interval observes some variety: though not a little of the apparent difference may be ascribed to the different stages of the disease in which a physician is first consulted; and his inability of fixing very accurately the commencement of the febrile incursion. Dr. Plenciz, on this account, pursues a middle course, and avails himself of unallowable latitude; "About the second or third day," says he, "and sometimes later, the red, unequal eruption, makes its appearance*." Generally speaking, the more violent the attack the sooner the efflorescence is thrown forth: and hence during a severe and extensive range in Newcastle-upon-Tyne in 1778, Dr. Clarke tells us that, where it began with great vehemence, the eruption was often observed on the first day: but commonly it did not make its appearance till the second or third, and sometimes not till the fourth.

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* Med. Trans. Vol. III. p. 397.

The more violent the attack the earlier the efflorescence.

We have seen that rosalia has been often confounded with measles, to which, indeed, it bears, in many cases, no small degree of resemblance. The following distinctive characters, therefore, may be of use to prevent a mistake.

Character of scarlet-fever compared with that of measles.

The efflorescence of the measles does not appear till two days later than that of scarlet-fever; and though it consists at first of broad patches amidst the general suffusion of red, stigmatized with interspersed dots, the dots are of a deeper colour, and are never lost in the efflorescence. It commences, moreover, with symptoms of a severe catarrh, which do not belong to scarlet-fever; and is without that restlessness, anxiety, and depression of spirits by which the latter is peculiarly distinguished.

Sometimes accompanied with a vesicular eruption.

From the great determination of blood to the cutaneous vessels, an effusion of coagulable lymph sometimes takes place in the papulous elevations, which is not entirely absorbed by the time the efflorescence subsides; and hence there is occasionally, though not often, an appearance of vesicles, sometimes nearly empty, and sometimes nearly filled with a pellucid fluid, according as the effused serum has been more or less carried off. I have seen them exhibit the semblance of minute chicken-pox; and they have been thus noticed by many writers, particularly by Dr. Rush†, Dr. Withering, and Dr. Plenciz: the last of whom compares them to white

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[*] M. A. Plenciz, Med. Vindom. Tractatus de Scarlatinâ. 1776.

[†] Medical Inquiries and Observations, p. 123.

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Explanation.

miliary spots; and expressly states that he observed them on the sixth or seventh day from the commencement of the eruption, chiefly in the hands and feet: in other words, at the time when the turgid cuticular vessels had contracted and the efflorescence was on the decline. On examination, he further tells us that they appeared to be nothing more than cuticular elevations filled with minute bubbles of air. More correctly, perhaps they were quite empty, the effused serum being carried off by absorption*. M. de Sauvages has made this form of the disease a distinct species, as scarlet-fever, with him, constitutes a distinct genus†; and as the effused fluid, when its finer parts are first absorbed, occasionally appears thick and opake, and has some resemblance to minute pustules of small-pox, he has distinguished it by the name of scarlatina *variolodes*.

Called by Sauvages, but incorrectly, scarlatina variolodes.

Anomalous protraction of interval in some cases between exposure to attack and appearance of eruption.

There is another peculiarity which the disease sometimes exhibits, and to which the attention of the profession has of late been particularly called by Dr. Maton‡. The disorder, in the case alluded to, showed itself in a large family and evinced all the common symptoms of a mild rosalia; and, like rosalia, it proved itself contagious, for every member of the family elder or younger, to the number of eight, received it in succession. But its singularity was the great length of interval between the time of exposure to the attack in those who sickened nearest to each other in the order of its descent, and any sensible effect on the system; which instead of being, as in ordinary cases, four, five, or six days, was, upon an average, not less than twenty-one days; varying in different individuals, from seventeen to twenty-six days. And on this account, in conjunction with one or two other signs of minor importance, Dr. Maton, though he at first regarded the disease as a modification of rosalia, was afterwards inclined to believe it a new complaint

And hence such cases not supposed by some to be genuine rosalia.

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* Class III. Ord. Exanth. Gen. VIII.

† Tractat. de Scarlatinâ.

‡ Med. Trans. Vol. v. Art. XI.

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requiring a distinct designation. Yet if we reflect how often a similar, or nearly similar retardation takes place in particular families after inoculation from either the small-pox or cow-pox, in which we have a much more definite period to calculate from, we shall rather perhaps be justified in adopting Dr. Maton's first view of the disorder, and contemplating it as a rosalia modified by a peculiar family temperament, or some other accidental control. In the paristhmitic variety or that accompanied with sore throat the eruption is always later in its appearance than in the simple form; in a case I shall have to quote from Dr. Perceval, not less than eight days later; though I have never known it protracted to so late a period as in the modification noticed by Dr. Maton, where the febrile symptoms have taken place as early as usual from the time of exposure. The efflorescence in the measles, however, sometimes evinces a like procrastination, and has appeared as late as the twenty-first day[*].

Similar retardation in other complaints.

β E. Rosalia paristhmitica. Scarlet-fever with sore throat. Description.

In the second or PARISTHMITIC VARIETY the morbid virus is chiefly directed to the fauces, instead of to the surface of the skin generally. And hence, in some cases, the cutaneous efflorescence is very slight, and consists of a few scattered patches of flush instead of a diffused sheet. The rash, moreover, appears later by a day or two, sometimes even a week; probably delayed by the same cause that interferes with its general spread over the skin, being the local irritation about the throat. This last symptom will be found to commence very early if the throat be minutely inspected; for though no complaint is usually made of uneasiness in the throat previous to the febrile symptoms, yet, if it be closely examined, the velum pendulum palati will be found redder than natural, and sometimes the uvula will appear to be a little inflamed, the pulse being at this time not more than slightly disturbed, or flurried rather than feverish[†]. Dr. Willan asserts, that this

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[*] Buchholz Tode Med. Chir. Bibl. Band. I. p. 86.

[†] Dr. Sims, Memoirs of the Med. Soc. of Lond. Vol. I. p. 394.

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takes place as one of the first effects of the contagion, and describes it, as "a dark-red line extending along the velum pendulum palati and lower part of the uvula*. Gradually, however, the tonsils become enlarged, and exhibit a florid paleness on their surface, which extends over the whole range of the palate, its velum pendulum, the uvula, and the posterior part of the fauces: the tongue assumes a high red colour, the papillæ over its entire surface are greatly elongated, and very tender to the touch; there is often a considerable stiffness in the muscles of the neck and lower jaw; the throat is rough and straightened from the second day of the eruption; and deglutition is performed with difficulty.

All the symptoms violent.

All the common symptoms are more violent; the fever is severer, accompanied with nausea, vomiting of bile, great heat, and languor; considerable inquietude and anxiety, head-ache, and delirium; evidently proving a copious determination to the head as well as to the fauces. The pulse is feeble, the respiration quick; the throat becomes excoriated and throws off a large quantity of minute superficial whitish sloughs, which intermix with the increased flow of viscid mucus, and augment the difficulty of swallowing. The sloughs generally separate about the fifth or sixth day, or at the decline of the efflorescence; bu sometimes they remain a day or two longer.

And sometimes highly dangerous from the first.

This is the ordinary course; but, in many cases, the symptoms run still higher; and the disease is alarmingly dangerous from its irruption. The pulse is small, indistinct, and irregular from the first; there is a stupid, heavy coma, or violent delirium with deafness; the ulcerations in the throat are deeper and broader, and covered with dark instead of with whitish sloughs; the tongue is lined with a black, chappy crust, and is exquisitely tender; the breath is fetid; the rash, extensive from the commencement, assumes a livid hue

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* Cutaneous Diseases, loc. cit. p. 269.

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with intermixed patches of ghastly paleness; and death ensues shortly after the seventh day, sometimes on the sixth.

Resemblance to malignant paristhmitis or cynanche, and is the cynanche maligna of Cullen:

The affection of the throat, in this last and most virulent attack, bears so near an approach to the malignant paristhmitis, and its peculiar symptoms commence so early, that some pathologists of great authority, and particularly Dr. Cullen, and Dr. Withering, have regarded it rather as a variety of paristhmitis or cynanche than of rosalia, whence in Dr. Cullen's synopsis it occurs under the designation of cynanche *maligna*. But as the scarlet or crimson eruption must be contemplated as a pathognomic symptom, this is to give us two distinct diseases, with the same essential signs; and Dr. Cullen has done this; for while he places this most virulent form of rosalia under his genus cynanche, he continues it, in the less virulent form under which we have just described it, as a subdivision of his genus scarlatina. The distinction, however, is altogether unnecessary, and leads to no advantage either pathological or practical in the writings of those who have adopted it. With the exception of a higher degree of danger in the one than the other, from the fever assuming the character of a more malignant typhus, both forms of the disease are the same; they are equally produced by a specific virus; equally contagious and at times epidemic; accompanied with a similar rash; demand a like mode of treatment; and even, according to Dr. Cullen's own admission, so frequently run into each other as to be extremely difficult of discrimination. In consequence of which few later writers have allowed any such distinction whatever. De Haen, therefore, had reason to say, as he does, apparently in reference to Dr. Cullen's arrangement, that different and improper names have been affixed to scarlet-fever by different writers: but that varieties in climate or constitution produce the distinctions under which it has been described.

who has still a scarlatina cynanchica, and hence the same disease twice over, or differing only in degree.

Dr. Withering, however, who was contemporary with

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Dr. Cullen, embraced and strenuously supported his view; contending that in scarlet-fever with sore throat the fever is inflammatory, and in sore throat with scarlet-fever it is putrid. Yet, in describing the treatment of this inflammatory fever, he seems to have lost sight of his critical characteristic, for he tells us that its nature is debilitating or sedative rather than entonic; and condemns, both purging and bleeding, as the pulse will not allow of these evacuations.

His distinctive characters:

In endeavouring still further to lay down the distinctive characters of the two, he observes, after Dr. Fothergill, that the angina *gangrænosa* (sore throat with scarlet-rash) usually commences in the winter or the spring, and chiefly attacks persons of delicate habits, as women and children; while the scarlatina *anginosa* (scarlet-rash with sore throat), on the contrary, usually commences in the summer or autumn, and commonly fastens upon the vigorous and robust. The scarlet-rash, however, of Newcastle-upon-Tyne in 1778, seems to have reversed this rule in its most essential point; for Dr. Clarke to whom I have just referred, and who has given a very minute and interesting history of this epidemy, tells us that it made it first appearance in June, extending from Newcastle over many towns and villages in the neighbourhood; that it was most frequent in August, September, and October, declining about December; and that it raged chiefly among children and young persons, although a few adults exposed to the contagion did not escape*. Dr. Clarke therefore concludes that both these diseases proceed from the same specific contagion, and ought rather to be considered as distinct forms of the same exanthem, than as distinct affections. It is accurately, also, observed by the same writer, that the epidemy of 1748, which Dr. Fothergill has so ably described under the name of Putrid Sore Throat, is essentially the same as that remarked upon by Dr.

opposed by the remarks of others; especially those of Clarke,

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* Observations on Fevers, especially those of the continued type, and on the Scarlet Fever attended with ulcerated sore throat, &c. 8vo. 1779.

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Cotton in his letter to Dr. Mead, and which he then denominated Scarlet Fever, from an objection to any alteration of the name in common use.

and Perceval of Dublin.

The subject ought not to be closed without adding the following note from Dr. Perceval's manuscript comment on the author's volume of Nosology, already noticed on many occasions. It adds a high authority to the present arrangement of this form of the disease; and contains one or two remarks which very agreeably display the observant tenour of the writer's mind.

The contagion has passed into Ireland from England.

"Cynanche *tonsilaris* and *maligna*, I consider with you as a species of rosalia. All have been produced by the same specific contagion, which in one instance was imported here (Dublin) from England in a Pandora's box, containing plumed soldiers which had served to beguile the convalescent hours of a young family, and were sent by them as a present to their quondam-playmates in this capital. We have had no severe visitation of rosalia in this place for upwards of ten years. In some instances, besides, I have traced the progress of contagion from England, and believe it loses something of its ferocity by the way. Do you think it comes from the continent? A remarkable case occurred to me of rosalia *paristhmitica* characterized most distinctly with symptoms of what is called cynanche *maligna*. This, with sunk pulse, great prostration of strength, and haggard countenance, ran a course of *seven* days without eruption; during which time it was treated with wine and bark which removed the affection of the throat. On the *eighth* day, after a rigor, a fever supervened of rather an inflammatory type with a rosalia eruption. After proper evacuations the patient recovered."

That rosalia, under every form, is contagious, and sometimes epidemic, is now admitted without a question: and for the later appearance of the efflorescence in the paristhmitic than in the simple variety I have endeavoured to account. But whether some countries are more disposed to favour its appearance in the form of an epidemy than others, and particularly whether un-

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der this form it be more common to England than to Ireland, as hinted at by Dr. Perceval, I have no data to determine.

Three ways in which a disease may become epidemic: from specific miasm generated in the atmosphere; or communicated to the atmosphere from the diseased; or from a temperament of the atmosphere predisposing to a general production of the disease. Both the last perhaps operate in scarlet-fever.

There are three modes by which this, or indeed, any other disorder may become epidemic, using the epithet in its general sense, as importing a disease of whatever sort that contaminates the atmosphere of a district or neighbourhood. It may proceed from a specific miasm generated from local or accidental circumstances in the atmosphere itself, as in the miasm of intermittent, and often of remittent fevers; from a like miasm generated in the body of a sick individual, and communicated to the atmosphere, as in typhus; or from a peculiar temperament in the atmosphere predisposing the entire population that inhale it to a common morbid affection. Of any specific miasm originating in the atmosphere, and producing rosalia, we have no proof whatever: but we have abundant proof of its issuing from the bodies of those who are sufferers under it; and, if I mistake not, of a peculiar temperament or constitution of the atmosphere in a particular district or season, that predisposes to its general production; for it often becomes common to many families so simultaneously that they have had no power of communicating it directly or indirectly to each other. And hence, however it may be favoured by external concurrent circumstances, we have good reason for believing that the miasm is always ingenerated; and that the disease, when communicated, is always by specific contagion.

Hence but slightly infectious in a sound atmosphere.

We may hence account for its being in a pure and healthy, or unpredisposing atmosphere but slightly infectious: for, in treating of the laws of febrile miasm which, under different circumstances, originates both within and without the living body, we had occasion to observe that, when generated in the former manner, it appears to be less volatile than when in the latter, and less readily impregnates a periphery of pure air: whence the infection of typhus, which is commonly derived from this source, may be more easily avoided than that

Remark applicable to all the exanthems.

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of intermittents or even remittents. The miasms of all the exanthems seem subject to the same law, as they all probably issue from a specific affection of the living body; and hence all of them are comparatively confined in the range of their actions, though some radiate their influence to a much greater distance than others, and are not so soon dissolved or decomposed.

We may hence, also, see why the contagion of rosalia is received much more readily at some periods than at others. Nothing is more common than for a sporadic case of rosalia to occur in a family without communicating itself to the surrounding children, although no pains may have been taken to keep them separate; while a few months afterwards it may possibly be received from a neighbour's house merely by an incidental visit for a few minutes. In the former case there was no predisposition in the habit to receive the complaint; in the other, the altered state of the atmosphere has, perhaps, produced such a predisposition in a very high degree, and prepared the way for the disease to become a very general epidemy.

The nature of the predisposing state of the atmosphere unknown.

What this peculiar state of the atmosphere is has not yet been very accurately ascertained. It does not seem to depend altogether upon the season; though, commonly speaking, rosalia is more frequent towards the close of the summer, the common harvest-time of all debilitating diseases; and we also perceive that it is usually checked, at all periods, by a cold, dry, and bracing air, and hence is less frequent in the winter. But, with these exceptions, it has been found to range as an epidemy nearly equally from February to November; and sometimes through the whole of this term without ceasing: or only slackening its career when a keen dry breeze has sprung up from the north or the east.

Peculiarities belonging to it.

We see, also, another peculiarity in this disease, and that is in its ordinary limitation to children; and we see this character accompany it equally, whether the disease be sporadic or epidemic. Or, in other words, we behold the predisposing state of the atmosphere ob-

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serving the same restriction as the disease itself when it operates independently of any such predisposition. Adults, indeed, do not entirely escape, but their attacks are rare, and for the most part less violent.

General inference.

The remote cause of rosalia, then, is a specific virus, or a specific miasm generated in the living body. Of its occasional or exciting causes, separate from the predisponents just adverted to, we know nothing. It has sometimes seemed to follow upon catching cold, and at others upon a surfeit of the stomach; but as these are perpetually taking place without producing such effect; and as rosalia has often occurred where nothing of the kind could be traced, we can lay very little stress upon such casualties.

Influence of exanthems on the animal frame in rendering it less susceptive of the same.

All exanthems and nearly all fevers produce an influence on the system that renders it less susceptive of the same complaint for a certain period of time afterwards: yet the period varies from the plague, which exempts but for a few weeks, to the small-pox and measles, which usually extend the exemption to a term equal to that of a man's life: in consequence of which these disorders, except in a few anomalous cases, never appear but once in the same individual.

The degree of influence differs in different diseases. Its power in scarlet-fever.

Scarlet-fever seems to hold a middle range. It renders the system far less susceptible, and perhaps for several years; but the influence, in many individuals, wears off by degrees, and does not protect the whole of a man's subsequent life. Yet, as rosalia is a disease of infancy rather than of adult age, it is not often that persons suffer from it a second time, though examples of such a recurrence are occasionally to be met with.

Debilitating effects of scarlet-fever.

Rosalia is at all times a disease of debility; it prostrates both the body and the mind: but it has, in many cases, a peculiar tendency to weaken the absorbent system, and incapacitate it for carrying off the fluids that are exhaled into the internal cavities of the body; and hence to produce dropsy.

Particular tendency to dropsy. Progress of the hydropic sequel.

This calamitous sequel usually creeps on insidiously and without suspicion, and does not distinctly show itself till the twelfth or four-

Gen. I. Spec. I. ϛ E. Rosalia paristhmitica. Scarlet-fever with sore throat.

teenth day, and often considerably later, when the patient and his friends are flattering themselves that all danger is over. It commences with a peevishness, and a feeling of increased weakness and languor: the face is found to swell, and the urine to decrease in quantity, and to assume a somewhat bloody appearance, like the washings of flesh. The leuco-phlegmacy of the face extends gradually to the hands, feet, abdomen, and scrotum, till the whole body becomes puffed up. "I have known these swellings," says Dr. Perceval, "to attack all the cavities, the ventricles of the brain not excepted, and in one instance fatally, upon an eruptive affection so slight as hardly to be noticed. The child was not confined, but went out, and was exposed to air."

This last hint should not be dropped in vain; for the torpitude produced on the mouths of the absorbents by a sudden or injudicious exposure to cold air on recovering from rosalia, is one of the most common causes of this lamentable result: and hence we see, also, why it should be more common in winter than in summer; and in children than in adults, from the greater delicacy of their age. Dr. Withering confirms the instance just offered by Dr. Perceval, that it is occasionally to be found after the mildest form of the disease; but adds, that it succeeds chiefly to its malignant or worst species.

Medical treatment.

The curative treatment needs not long detain us. In slight cases of the simple variety, we may say with Dr. Sydenham, that the disease hardly calls for medical assistance of any kind. When the fever is mild, it forms, as we have already observed in respect to exanthems of all kinds, the natural means of cure by determining the specific poison to the surface. An emetic may assist this determination, and has hence been almost always found serviceable; and if the bowels be confined, an aperient may follow; but violent purging will add to the irritation, and distract the remedial course that is taking place.

Little necessary in its mildest form. Principle.

In the paristhmitic variety, the determination, instead of being to the skin generally, is powerfully deflected to the throat and head, and the fever is alarming from

Gen. I. Spec. I. Enanthésis Rosalià. Scarlet-fever. Treatment.

its violence. The therapeutic intention is here to counteract this morbid flow and redness of the febrile action, always having regard to the nature of the fever as well as to its severity.

Bleeding objectionable; though recommended by some writers.

Bleeding is the most direct and obvious means of reduction: but it is open to the same objection as in typhus; with the additional fact, that we have here to deal chiefly with children who have at all times less surplus of strength to spare than adults. Dr. Plenciz is, however, a strenuous advocate for the use of the lancet, and Dr. Armstrong has recommended it still more lately. Where the head is manifestly oppressed from contagion, it may be risked as a mode of local relief, and may be so far of service; but it is a risk at all times, and ought by no means to form a part of the general curative plan. With the exception of typhous miasm, there is nothing that so much exhausts, or rather perhaps suppresses the secretion of sensorial power as the miasm of rosalia; nor is there any evacuation that adds so immediately to the direct debility of the system as venesection: and consequently none that ought to be so studiously avoided as a general rule. And hence, often as the practice has been introduced by different individuals, it has never been common or established. Even Dr. Withering, who denominated the fever inflammatory, rigidly abstained both from bleeding and purgatives; and confined himself, in the onset of the disease, to emetics*.

Emetics highly useful.

Reasoning of Withering upon emetics.

Vomiting, which has just been recommended in the first species, is still more necessary in the present; for it not only tends to take off the dry burning heat of the skin by relaxing it, but unloads the fauces of the mucous and serous fluids that gorge and distend them. Whether also, as conjectured by Dr. Withering, it arrest the matter of contagion received from the breath of the sick, in its threshold, and prevent it from assimilating the confined and viscid mucus to its own nature, is a question which is not necessary to examine into. Its practical advantage is sufficiently obvious, without leaning upon any hypothetical good; and it will often be proper, as recommended by Dr. Withering, to repeat it occasionally, as the foul and infarcted state of the fauces may require.

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* Account of the Scarlet Fever in 1778, 8vo.

Purgatives how far useful.

We have just observed that this distinguished physician prohibited purgatives as well as bleeding. But in doing this he discovered still further the trammels of hypothesis; for while he conceived that emetics tended directly to throw off the matter of contagion from the organ in which he supposed it to be chiefly concentrated, he conceived at the same time that purgatives, on the contrary, only promote its diffusion along the course of the intestinal canal. This reasoning, however, cannot be allowed: the system should not be weakened by their violence, but their use can rarely be dispensed with. As aperients they remove whatever acrimonious material may be lodged in the intestines, and as revellents they powerfully recal all morbid determination from the head. Calomel, as operating upon all the excretories, is commonly to be preferred to any other cathartic, or may be conveniently combined with rhubarb.

Opium injurious.

The great inquietude that characterises this disease has induced many practitioners to try opium, but it rarely affords relief in any form or combination; and generally renders the head worse. Acids, whether vegetable or mineral, are always grateful to the patient, and seem more than any other internal mean to diminish the burning heat of the skin. But our chief dependance for this purpose must be upon Dr. Currie's bold and happy plan of employing cold water freely. Sponging will rarely be found sufficient, or rather will rarely be found of equal advantage with affusion; the fluid may, indeed, in this case be dashed against the patient till the heat is subdued, and the process be repeated as fast as it returns. The refreshment is often instantaneous, and operates like a charm; and seems to show, as I had occasion to observe formerly, not merely a refrigerant, but an exhilarating power, as though the water were

Affusion of cold water: water probably decomposed on its application.

Gen. I. Spec. I. Enanthésis Rosalia. Scarlet-fever.

decomposed and a part of its oxygene were swallowed greedily by the thirsty absorbents of the skin, which immediately becomes softer and moister as well as cooler.

Treatment. Gargarisms.

The throat must in the mean while be deterged with antiseptic gargles of oxymel and port-wine, port-wine-negus, or any of those already noticed under malignant paristhimitis; or fumigated with the vapour of mineral acids. Blisters may also be applied with good effect. Dr. Withering objects to them; but the general practice is very much in their favour.

Blisters.

Aurum fulminans.

In severe cases Dr. Plenciz[*], had course to the aurum fulminans, as recommended by De Haen[†], and speaks warmly of its success. Its design was to operate on the bowels and bladder, and it was given in composition with calomel, rhubarb, and squills. I have never tried it, nor can I very clearly trace out the path by which any benefit may be hence expected. Wine and nutritious food may be allowed, but somewhat less freely than in malignant quinsey. The convalescent state requires great care; and a damp cold atmosphere should be especially avoided from the tendency to dropsical swellings.

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[*] Tractat. de Scarlatinâ.

[†] Rat. Med. Continuata. Tom. I. Part I. 8vo. Vienna.

SPECIES II.

ENANTHESIS RUBEOLA.

Measles.

RASH IN CRIMSON, STIGMATISED DOTS, GROUPED IN IRREGULAR CIRCLES OR CRESCENTS; APPEARING ABOUT THE FOURTH DAY, AND TERMINATING ABOUT THE SEVENTH; PRECEDED BY CATARRH: FEVER A CAUMA.

Of the earliest accounts we possess of measles, the origin of the name of rubeola, and the frequency with which it was at first mistaken for rosalia, some notice has been taken under the last species. In its perfect form it is unquestionably contagious from a specific miasm, though we shall presently have to notice one variety that is inactive in this respect. Like rosalia, also, it is at times epidemic, and probably from the same cause,—a general predisposition in the population of the affected district or country to receive its contagion, perhaps to originate it, from some peculiar but unknown temperament or constitution of the atmosphere.

Gen. I. Spec. II. Disease when perfect contagious from a specific miasm, at times epidemic.

It occurs under the three following varieties:—

α Vulgaris. Common Measles.	Rash slightly prominent extending over the mouth and fauces; harsh, dry cough, inflamed, watry eye.
β Incocta. Imperfect Measles.	Rash running its regular course, with little fever or catarrhal affection; affording no certain security against the common or regular disease.

Gen. I. Spec. II. Enanthésis Rubeola. Measles.

γ Nigra. Black Measles. Rash about the seventh or eighth day assuming a black or livid hue, interspersed with yellow: prolonged in its stay; and accompanied with extreme languor and quickness of pulse.

α E. Rubeola vulgaris. Common measles.

Ordinary exciting cause a peculiar constitution of the atmosphere.

The only predisposition or exciting cause of rubeola that we are acquainted with, is the peculiar constitution of the atmosphere just referred to. And under the influence of this cause the FIRST VARIETY usually shows itself as an epidemic; generally commencing in the month of January, and ceasing soon after the summer-solstice. There seem, however, to be some other exciting causes than a peculiar state of the atmosphere, or of the season; for we meet with a few scattered cases of it in almost every month of the year, evidently proving an ingenerate origin, and that the atmosphere is not auxiliary to its diffusion, from its continuing to be merely scattered; yet possessing its ordinary principle of contagion, which only appears to be less generally active because there is a less general predisposition, in those who have never undergone it, to be acted upon.

Other exciting causes unknown; but proved from its being at times sporadic.

Found most commonly in children.

It occurs most usually in children, though no age is altogether exempt from it. As rosalia is accompanied with a typhoid fever, rubeola is accompanied with a catarrhal; and hence, the opening symptoms consist of some degree of hoarseness, with a harsh dry cough, and frequently uneasy respiration; the eye-lids are tumified, the vessels of the conjunctiva turgid and inflamed, the cheeks are wet with a flow of acrid tears, and the nostrils loaded with acrid serum, that irritates them and excites an almost perpetual sneezing; the head aches or is drowsy; and the stomach, from sympathy, rejects its contents. On the fourth day the rash makes its appearance and assumes the character described in the specific definition. The stigmatised and pathognomic dots are sometimes at first attended by so general a flush as to be lost in them, and to give the appearance of scarlet-fever. I have

Description.

Gen. I. Spec. II. α F. Rubeola vulgaris. Common measles.

Distinctive characters of measles and scarlet-fever.

already noticed several signs by which the two diseases may be distinguished, and the following may be added to the number. In scarlet-fever there is no cough, the eyes do not water, and the eye-lids are not red and swelled. In measles the papulæ are more acuminated, of a crimson instead of a scarlet hue, and do not appear till two days later than in scarlet-fever.

In small-pox the fever abates as soon as the eruption makes its appearance. In scarlet-fever this is by no means the case, and as little so in measles; the vomiting, indeed, subsides; but the cough, fever, and head-ache grow more violent; and the difficulty of breathing, weakness, of the eyes, and indeed all the catarrhal symptoms, remain without any abatement till the eruption has completed its course.

The earlier the efflorescence the slighter the attack.

In rosalia we have also seen that the sooner the efflorescence breaks forth after the febrile attack, the slighter and more favourable the disease. The same occurs in rubeola. The ordinary period we have already stated to be the fourth day, but it occasionally appears on the third, when the patient commonly escapes with but little inconvenience*. A few rare examples may be found of its exceeding, instead of anticipating its proper term; and this so considerably, that Buchholz gives us an instance of its not appearing till the twenty-first day: thus precisely rivalling the singular anomaly of scarlet-fever aleady quoted from Dr. Maton†.

Irregular periods of appearance.

Desquammation.

On the third or fourth day after the eruption first appears, the redness diminishes, the spots fall off in branny scales, which sometimes, however, are scarcely perceptible from their minuteness and tenuity; leaving a slight discoloration on the skin, with considerable itching. On the ninth day from the beginning, when the progress has been speedy, and on the eleventh when it has been slow, no trace of measles remains. The eyes,

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* Van der Haar, Waarneemingen.

† Tode Med. Chir. Bibl. B. I. p. 86.

Gen. I. Spec. II. α E. Rubeola vulgaris. Common measles.

however, in many cases continue still inflamed, and the cough is followed with severe peripneumonic symptoms which terminate in phthisis. Yet these sequelæ rarely occur except where the treatment has been improper, or there is a predisposition to consumption from a strumous state of the lungs or some other phthisical diathesis.

Residuary symptoms and sequels.

Power of suspending variolous action.

If, on inoculation for small-pox, rubeolous contagion should have been previously received into the system, the variolous action will generally be, though not always, suspended till the measles have run through their proper course, when the inserted virus will resume its power and the variolous eruption follow in its due order. This quality of suspension, however, is not peculiar to the measles. "I have known," says Dr. Perceval in his manuscript comment on the present species, bex *convulsiva* yield the pas to variola, and then resume its station." In like manner consumption is generally suspended during the entire course of pregnancy, and recommences its inroad on child-birth.

Similar power in other diseases.

Ordinarily occurs but once in a man's life: in a few instances a second time.

Measles in their more perfect form, which is that we are now contemplating, may be said, as a general rule, to occur but once in the course of a man's life; for though a few instances of a second attack are to be found *exceptio probat regulam;* they are so rare as rather to maintain than disturb the law*. Dr. Willan asserts that he never met with an instance. The anomaly is unquestionably less frequent than in scarlet-fever, and shows that the influence produced by the rubeolous action on the habit is more rooted and effective.

Commonly unaccompanied with danger.

In its ordinary course measles is a disease unaccompanied with danger. It is in fact a catarrhal fever with a specific eruption. The fever, as we have observed already respecting exanthems in general, is necessary to a certain extent for the purpose of throwing the virus upon the surface; as inflammation in a certain extent is necessary to produce healthy suppuration. But a small

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* Roberdière, Recherches sur la Rougeole. Paris 1776.

Gen. I. Spec. II. α E. Rubeola vulgaris. Common measles.

degree of pyrectic action is in both cases sufficient; for if this be exceeded, the natural means of cure itself becomes the disease rather than the morbid condition it is intended to remove.

Extent of the eruption dependent upon the degree of fever.

Treatment.

In all instances the extent of the eruption will depend upon the fever whenever the latter is in excess. And hence our attention is to be mainly directed to the fever itself; for by diminishing the fever we necessarily diminish the eruption also. In measles, therefore, the remedies we have already enumerated for a catarrh are those we are to have recourse to. An emetic is always useful on the incursion of the disease; and should be succeeded by cooling aperients and demulcents, the skin being kept moist, and its heat subdued by mild diaphoretics.

Venesection how far expedient.

Circumspection required.

Fever sometimes changes to a typhous form.

Dr. Cullen recommends blood-letting during every period of the disease; and it has hence often been practised at its commencement. It is rarely, however, that this can be called for except in the case of pneumonic inflammation; and as such an affection does not commonly appear till the close of the measles, we should, generally speaking, as recommended by Sydenham, reserve blood-letting till this period, and not exhaust the patient's strength beforehand; and the more so, as even here the fever has sometimes proved a synochus, and terminated in a typhous form, as particularly noticed by Sir William Watson in the children of the Foundling Hospital in 1763 and 1768, who gives to this modification the name of putrid measles [*]: if, indeed, this were an example of the genuine disease, of which there is some doubt, though there is little doubt that in a few constitutions the disease has taken this turn. "In a charity school, where measles prevailed," says Dr. Perceval, in commenting on this species as given in the Nosology, "typhous infection was introduced; hence the variety α changed to β." It is highly probable that some such accidental cause occurred in producing Sir William Watson's modification.

Exposure to cold, so highly serviceable in small-

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[*] Medical Observations, Vol. IV. Hoffman. Opp. Tom. II. p. 67.

Gen. I. Spec. II. α E. Rubeola vulgaris. Common measles. Treatment. Exposure to cold mischievous, and why. Room spacious and airy. Food. Inhalation of vapour. Opium rarely useful.

pox, has, from a supposed analogy, been recommended also in measles by some rash practitioners, and adopted by others. All fair analogy, however, is against the practice: the fever in measles is directly catarrhal, and the analogy should be drawn, not from small-pox, but from catarrh, in which exposure to cold would, in the opinion of every one, be absurd and mischievous; nor can any thing be so likely to produce pneumonic inflammation, which, in truth, is most commonly the result of carelessness upon this very point. The room should be large and airy, free from currents of cold, but not hot; the drink warm, the food light, diluent, and in a liquid form. If the cough be troublesome, it will be useful to breathe the steam of warm-water, not through an inhaler, but over a large basin, with the head covered with a flannel large enough to hang over its edges; and by this mean the inflamed eyes will also have the benefit of the relaxing vapour. If the oppression of the chest, pain, and coughing should return, as they are apt to do on the disappearance of the eruption, venesection or cupping must again be had recourse to, however they may have been employed antecedently. Opium does not, in this case, afford the relief we might expect: it increases the heat and restlessness, but rarely conciliates sleep. A supervening diarrhœa proves the most favourable crisis, and should be very cautiously corrected. And where it does not take place naturally, it may be wise to imitate it by gentle laxatives.

β E. Rubeola incocta. Imperfect measles. Sometimes called spurious measles:

From a peculiarity of constitution, or some accidental influence exercised over it at the time, the rubeolous rash is sometimes found to run through its regular course with little fever or catarrhal affection, as though it were a simple cutaneous eruption, and without appearing to afford an immunity to the individual against a future attack; constituting our SECOND SPECIES*. This has usually been called, and especially by the German

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* New York Medical Repository, Vol. v. Art. III.

Gen. I.
Spec. II.
β E. Rubeola incocta.
Imperfect measles.

by Willan rubeola sine catarrho.

Distinct from slight attacks of genuine measles.

writers, spurious measles; but as it occurs most frequently when the genuine measles are epidemic, and is doubtless a result of their contagion, it is less properly a spurious than an imperfect or immatured rubeola; and I have hence exchanged the term *spuria* for *incocta*. Dr. Willan denominates it rubeola *sine catarrho;* but as the genuine measles themselves, capable of affording emancipation, have sometimes appeared with very slight catarrhal symptoms, *incocta* seems preferable. "Some," says Dr. Heberden, "have been so fortunate as to have the measles appear after suffering so very little from fever, or any of the preparatory symptoms, that they could hardly say they had been ill." In this case the constitution is protected by a natural insusceptibility of the disease; which is the best protection we can possess. In the case of imperfect measles, it is only operated upon by some temporary influence; and hence as soon as this influence ceases, the common susceptibility returns.

γ E. Rubeola nigra.
Black measles.

Rarely of serious consequence, unless typhus associate.

The THIRD VARIETY, or BLACK MEASLES, seems to consist in an intermixture of dark, discoloured, or petecchial spots from effused blood, with the proper rubeolous rash. It is found chiefly in persons of debilitated and relaxed fibres: and the dark patches will sometimes remain for ten or twelve days after the commencement of the eruption, with no other symptoms of fever than a quicker pulse and an increased degree of languor. It is rarely of serious consequence, unless a typhous infection be accidentally communicated, as mentioned by Dr. Perceval, and usually yields with ease to an infusion of bark with sulphuric acid.

Rubeolous inoculation,

as performed by Dr. Home:

of uncertain result,

Inoculation has been tried for the measles by employing the acrid serum from the eyes, or from minute vesicles that sometimes appear between the patches of the rash. Dr. Home, not being able to obtain a contagious ichor from either of these quarters, drew blood from a turgid cutaneous vein where the eruption was most confluent; and impregnating a dossil of cotton with it, he applied the cotton to a wound made in the arm. It has occasionally succeeded, but more frequently

Gen. I. Spec. II. γ E. Rubeola nigra. Black measles. and an unnecessary precaution.

failed; nor does it seem to operate with any certainty in producing a mild modification; for many of the cases of inoculated measles have been quite as severe as we might reasonably have expected from a natural attack. It is in truth a very unnecessary caution in a disease that in its ordinary range excites so little alarm; and which leaves no blemish, like the small-pox, on the skin.

SPECIES III.

ENANTHESIS URTICARIA.

Nettle-Rash.

RASH IN FLORID, ITCHING, NETTLE-STING WHEALS; APPEARING ABOUT THE SECOND DAY; IRREGULARLY FADING AND REVIVING, OR WANDERING FROM PART TO PART: FEVER A MILD REMITTENT.

Gen. I. Spec. III. Precursive symptoms.

This, like the last species, is rather a troublesome than a dangerous complaint; though it is always attended with some slight disorder of the constitution, as head-ache, drowsiness, coldness, and shivering, succeeded by great heat and a white fur on the tongue. But the stomach seems chiefly to suffer: and hence there is not unfrequently pain and sickness in this organ, with great languor, faintness, and anxiety. And, as a sympathetic affection, the eruption has often followed on any violent disturbance of the stomach alone, as surfeit, cold, cucurbitaceous or other indigestible vegetables, mushrooms, crab-fishes, muscles, cupreous or other mineral poisons, introduced into the stomach by mistake.

Exciting causes unknown.

The exciting cause, however, of genuine idiopathic nettle-rash, is usually concealed from us; for it often makes its appearance without any of these irritants, or indeed any other that we are acquainted with; and hence Dr. Heberden inclined to believe that the skin itself is

GEN. I.
SPEC. III.
Enanthesis
Urticaria.
Nettle-rash.

How far related to lichenous eruptions.

often the chief seat of disorder, and that the stomach and the system only suffer secondarily *. He has hence contemplated it as a modification of lichen, closely connected with the prickly heat of the West Indies, the essera or rather eshera (اشرا) of the Arabian writers. The resemblance is close; but there are characters by which the two diseases may be distinguished with tolerable ease.

How distinguishable.

In nettle-rash the efflorescence is in scattered wheals with few papulæ; in lichen, in scattered papulæ with few wheals. In the latter the itching is more mordant and aculeate; the eruption instead of terminating in a few days runs on to an indeterminate period; and, however irritating, produces little or no fever, and but a slight constitutional affection of any kind.

By Sauvages regarded as a variety of scarlet fever.

How distinguished.

In Sauvages, on the contrary, nettle-rash is treated of as a scarlet-fever under the name of scarlatina *urticata*. But its character as given in the specific definition is sufficient to distinguish it from any form of rosalia, which has no wheals or elevated beds with a defined outline, and no sensation of stinging.

Found chiefly in the summer.

Commences chiefly at night.

How denominated by the Arabians.

The nettle-rash occurs chiefly in summer, and more frequently among persons of a plethoric or sanguine habit, especially those who indulge too freely in eating and drinking. In children it seems sometimes to be connected with teething or irritation of the bowels. The eruption commonly takes place at night after the febrile symptoms just noticed have prevailed for about thirty or six-and-thirty hours; and on this account the Arabians elegantly and correctly denominated the coloured wheals بذا ت آلّيل (benat-allil), "offspring or daughters of the night."

Idiopathic form how distinguished from sympathetic.

By the length of the precursive symptoms the idiopathic disease is distinguished from the sympathetic affection, so closely resembling it, which is occasioned, as already observed, by crapulence, or substances introduced into the stomach that disagree with it. In this last case

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* Medical Transactions, Vol. II. p. 173.

Gen. I. Spec. III. Enanthesis Urticaria. Nettle-rash.

Spurious or anomalous forms.

the general swelling and eruption take place immediately, and subside as soon as ever the occasional cause is removed. Wheals of a similar appearance are sometimes found with other peculiarities, as of a whiter hue, or interspersed with small tubercles, or of very small diameter except when they unite in clusters: some of these sorts trouble the skin permanently; others vanish and reappear several times in the course of the day; others subside for a week or two, and then rally and re-occupy their stations. But all of them are of chronic duration, are little accompanied with fever; and cannot be considered correctly as varieties of the idiopathic disease. They occur, however, as such in Dr. Willan's treatise.

Medical treatment.

A cooling regimen, and subacid diluents, with a free exposure to pure air, generally succeed in effecting a cure of nettle-rash without any other medical treatment. A gentle laxative or two however should be added to the domestic means: and if the itching be very troublesome it may be often allayed by the use of camphorated vinegar. The juice of fresh parsley has the reputation of producing an equally good effect; but evaporation by means of any other fluid applied to the itching parts would probably be found as beneficial.

Has proved fatal;

but apparently only when complicated with some other affection.

Dr. Willan describes a single case in which urticaria proved fatal *. This patient was a man of about fifty years of age, who had impaired his constitution by hard labour and intemperance. The precursive symptoms were all violent, and the sickness and languor were followed by fainting fits; and he had great pain in the stomach, which was increased by pressure. The fever was considerable, and soon attended with delirium. While the rash was most vivid his internal complaints abated; but he gradually got worse, and died on the seventh day. Here, again, however, the urticaria seems to have been only symptomatic. It afforded him relief, and offered the only chance of a recovery.

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* Cutaneous Diseases, p. 401.

GENUS II.

EMPHLYSIS.

Ichorous Exanthem.

ERUPTION OF VESICULAR PIMPLES FILLED PROGRESSIVELY WITH AN ACRID OR COLOURLESS, OR NEARLY COLOURLESS FLUID; TERMINATING IN SCURF, OR LAMINATED SCABS.

GEN. II.
Origin of the generic term.

THE term emphlysis is derived from the Greek εμ or εν, "in, intra;" and φλύσις, "a vesicular tumour or eruption." Ἔκφλυω is usually employed among Greek writers nearly in the same sense as φλυω. In the present system it will be found employed somewhat more strictly, and in opposition to ἔμφλυω; so that while emphlysis, from the latter, imports an eruption of vesicles, whether large or small, produced by or accompanied with *internal and febrile affection* essentially connected with it; ecphlysis, from the former, imports an eruption of vesicles simply cutaneous or *superficial*; or, if, in a few varieties, combined with internal affection, not necessarily or essentially associated. Of the last, therefore, we shall have to treat in the third order of our sixth class intitled ECCRITICA.

How distinguished from ecphlysis.

The genus EMPHLYSIS includes the following species:

1.	EMPHLYSIS MILIARIA.	MILIARY FEVER.
2.	——— APHTHA.	THRUSH.
3.	——— VACCINIA.	COW-POX.
4.	——— VARICELLA.	WATER-POX.
5.	——— PEMPHIGUS.	VESICULAR OR BLADDERY FEVER.
6.	——— ERYSIPELAS.	ST. ANTHONY'S FIRE.

SPECIES I.

EMPHLYSIS MILIARIA.

Miliary Fever.

VESICLES SCATTERED OVER THE BODY, OF THE SIZE OF MILLET-SEEDS; TRANSPARENT-RED, AFTERWARDS MILKY: PRECEDED BY A PRICKING SENSATION; SIGHING, ANXIETY, AND SOUR SWEAT.

GEN. II. SPEC. I. Origin of the specific name.

THE disease takes its name from MILIA, "millet-grains," in consequence of the resemblance of its vesicles to the seeds of this plant in size, and, when matured, in colour. There is a doubt when it first made its appearance, and another doubt among some pathologists whether it be ever any thing more than a symptom of some other complaint.

Possesses two stages formerly called two varieties.

Red and white miliaria.

Difference of colour explained.

It has been treated of for at least a century and a half, and that, too, as an idiopathic malady. It is said to have appeared first of all in Saxony; and the oldest writers assign two varieties to this disease distinguished in Germany by the names of *Rothen Friesel* and *Weisse Friesel*, or red and white miliaria*, but perhaps unnecessarily, as both varieties seem in most if not in all instances to be only different stages of the same affection. The vesicles are at first red from the colour of their under surface, or inflamed base, being transmitted through the transparent pellicle; they are afterwards opake and milky from absorption of the more attenuate part of the fluid, or some other change. In a few cases, however, the red hue seems to have continued throughout; and in others the white hue to have appeared from the commencement: a variation in the nature of the secretion and in the mode of its absorption producing this difference of effect.

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* Sindner, Betrachtungen des Rothen und Weissen Friesels. Schweidniz, 1735.

Often called purpura; and confounded with putrescent spots.

From the redness of the vesicles on their first eruption, this disease has also been denominated by many writers on the continent PURPURA; and has hence been confounded with the petecchial or flea-bite-like spots that appear in scurvy and putrescent fevers: and the rather as miliaria is also a disease of debility. Ploncquet seems to have intermixed all these as well as pemphigus, and described them under the common name of miliaria *. In like manner Gerike's dissertation on this disease is intitled De Morbo Miliari, *alias Purpurâ dicto* †; and Juck's De Febre Miliari, vulgo *Purpurâ rubra et alba*, seu chronica ‡.

Sometimes regarded as a rash,

From the minuteness of its vesicles, whose elevation can often only be ascertained by the finger, this species treads close upon the general complexion of the genus enanthésis, or rash-exanthem, and during its red appearance is often called a rash; and hence another cause of confusion and intricacy. By Linnéus and Parr it is on this account defined nearly in the same terms as rubeola, so far as relates to the eruption; and at Leipsic in 1650, where it is said to have been contagious or epidemic, was unquestionably mistaken for rosalia or scarlet-fever. As a symptom it sometimes accompanies inflammatory fevers, but more generally those of atony. It is certainly at times attended with flea-bite spots, or petecchiæ, and Huxham speaks of it as sometimes giving rise to them §: an observation confirmed by a like statement of Boncerf ||: and hence another reason why it has occasionally been treated of under the term purpura.

and related to measles.

Occasionally a concomitant of both inflammatory and atonic fevers.

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* Initia Biblioth. v. p. 564, 565.

† Hal. 1733.

‡ Erford. 1716.

§ Vol. I. passim.

|| Hantesierk, Recueil, II. p. 217.

GEN. II. SPEC. I. Emphlysis Miliaria. Miliary fever.

Description.

The eruption makes its appearance at an uncertain period after the commencement of the introductory fever; usually, however, on the third or fourth day. It seldom shows itself upon the face; but is first visible upon the neck and breast, and thence spreads progressively over the entire body. The febrile attack is usually somewhat severe in all its stages, the pricking sensation occurs during the hot fit, and is like that of pin-points struck into the skin; the sweat is copious, but proves by its sour and olid smell that it is a morbid secretion, and hence affords no relief. The disease runs on with variable remissions or exacerbations for seven or even fourteen days, and has sometimes extended to twenty-one days, commonly terminating in a critical and natural sweat; the red transparent vesicles, as already observed, gradually assuming a whiter hue, and losing their transparency; and about the fifth day drying in minute crusts or scales; which, in some instances are succeeded, as in the case of aphthæ, by a new crop of vesicles that pass through a like course. Notwithstanding the anxiety and depression of animal spirits which so peculiarly mark this exanthem, it commonly maintains through its entire range a mild character undisturbed by any alarming symptoms. In some instances, however, either from the constitution or peculiar circumstances of the patient, or the peculiar temperament of the atmosphere, it puts on a malignant character and proves fatal in a few days.

Seldom alarming in its progress: but occasionally so from accidental circumstances.

Probably not contagious. Mostly a secondary affection. According to Cullen always so. The contrary evinced.

We have no clear proof of its being contagious; and Stoll*, and most pathologists with him, deny that it is so at all. In the present day, indeed, it is found more frequently as a secondary or symptomatic, than as an original affection. Cullen denies that it is ever otherwise than symptomatic. But this is to speak in too proscriptive a tone: for I have lately had a clear and well marked example of its idiopathic appearance in a young gentleman of a bilious habit, thirteen years of age, in

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* Rat. Med. II. p. 58, 169.

GEN. II. SPEC. I. Emphlysis Miliaria. Miliary fever.

which the vesicles were very numerous, but distinct. They passed through the two stages of a red and milky hue, and terminated on the seventh day in branny scales, unconnected with any other ascertainable disease: and M. Planchon has given abundant instances of the same kind*.

Supposed by Cullen to be produced by excessive perspiration.

Dr. Cullen, indeed, conceives it to be nothing more than an eruption occasioned by a stage of sweating protracted till it has produced debility, in any fever whatever. But in this case we should expect it most frequently in the clammy saburral sweats of typhous fevers, in which it is only occasionally to be met with, and certainly less frequently than in other fevers. M. Planchon regards it as proceeding most frequently from obstructed perspiration, which he lays down as its common cause: and M. Triller, instead of being a result of weakness, when in a symptomatic form, asserts that in various instances it proves critical†.

By Planchon, by suppressed perspiration.

Pathology.

In few words, miliaria when idiopathic is an eruption accompanied with a mild typhus, and a peculiar irritability of the skin. And when the same eruption appears as a symptom of some other disease, it is probable that a like irritability of the skin has been produced by a course of saburral or acrimonious sweating.

Remote and exciting causes equally unknown.

Of its remote or even exciting causes we are utterly ignorant. The stomach seems sometimes to be overcharged; cold in the feet has been suspected; and, as observed by M. Planchon, we have often obvious proofs of obstructed perspiration. But all these facts occur in thousands of instances without producing any such result.

Medical treatment.

It is, however, unquestionably a disease of debility; and to this character our eye should be directed in attending to its cure. Every thing that heats and stimulates should be avoided. The bowels should be cleared

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[*] Dissertation sur la Fievre Miliàire, &c. Tournay. 8vo.

[†] Triller et Molinarii Epistolæ mutuæ de verâ exanthematum Miliarium differentiâ.

GEN. II. SPEC. I. Emphlysis Miliaria. Miliary fever. Treatment.

of all irritating materials by mild laxatives; and, if offensive breath or any other symptom should indicate defedation of the stomach, an emetic should be given at the first. Cooling drinks, light bed-clothes and a cool atmosphere will, in every case, be of essential service; and the patient may be allowed to lay with his hands and arms out of bed.

By these means alone Dr. Cullen thinks he has frequently prevented miliary eruption in lying-in women and others where it might have been expected as a concomitant. But where it has actually appeared, he adds to this regimen the use of tonic and antiseptic remedies, particularly Peruvian bark, cold drink, and cold air.

Purgatives, however gentle, have been objected to by many pathologists: but when not carried beyond the strength of the patient, they rarely fail to be of service. "I am convinced by experience," says Sir George Baker, "that the prudent application of this practice to the miliary fever has been of singular advantage: and it is worthy of observation in this place, that the symptoms of the measles are often rendered less formidable, when, during this disease, the patient has every day two or three evacuations by stool*."

Perspiration not only to be checked, but changed in its nature.

Tepid ablution.

Antimonial alterants with mineral acids.

Camphor.

Something, however, more specific than this general plan will, in many instances, be found necessary. In his own practice the author has endeavoured not merely to check but to change the perspiration: and hence, while from an early period of the disease he has employed tepid ablution or sponging, which is always highly refreshing, he has given small doses of antimonial powder with infusion of roses containing a surplus of sulphuric acid: and has rarely continued this course for four-and-twenty hours without finding the sweat less copious and of a more natural quality. And where the languor has been distressing, he has added camphor in

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* Med. Trans. Vol. II. Art. XIX. p. 300.

Gen. II.
Spec. I.
Emphlysis Miliaria.
Miliary fever.

the form of pills, giving a scruple or half a drachm in the course of the twenty-four hours.

That the skin is in a state of peculiar irritation is highly probable from our being sometimes able to excite a like eruption by wearing a shirt of coarse flannel or horse-hair. And hence Dr. Darwin gives one example of miliaria, as he calls it, "produced by the warmth, and more particularly by the stimulus of the points of the wool in flannel or blankets applied to the skin, which by cool dress, and bed-clothes without flannel, soon ceased." He has distinguished this affection by the name of miliaria *sudatoria:* but it ought rather to be regarded as a variety of intertrigo, or fret.

A like eruption produced by merely irritating the skin;

but here no constitutional affection.

SPECIES II.

EMPHLYSIS APHTHA.

Thrush.

VESICLES GRANULAR, ROUNDISH, PEARL-COLOURED; CONFINED TO THE LIPS, MOUTH, AND INTESTINAL CANAL; TERMINATING IN CURD-LIKE SLOUGHS; OCCASIONALLY WITH SUCCESSIVE CROPS.

Gen. II.
Spec. II.

Aphtha is derived from the Greek ἅπτω "accendo" "to burn or inflame." Like the preceding species this eruption, though at one time supposed to be papulous, is now generally admitted to consist of minute vesicles containing a whitish or milky fluid, when matured: and hence, in a nosological arrangement, it naturally follows upon miliaria.

Origin of the specific term.

This disease is found under three varieties, a white, a black, and a chronic:

Gen. II.
Spec. II.
Emphlysis
Aphtha.
Thrush.

α Infantum. White thrush.	Appearing in infants soon after birth; and often extending from the mouth to the intestinal canal; mostly with slight febrile symptoms, and white sloughs.
β Maligna. Black thrush.	Accompanied with great debility of vascular action; usually ascending from the larynx into the mouth; sloughs black; fever a typhus.
γ Chronica. Chronic thrush.	Protracted and exacerbating; with great emaciation and hectic fever; extending through the whole range of the intestinal canal.

Pathology.

The disease consists in a peculiar acrimony that irritates the whole mucous membrane, and particularly the mucous glands of the mouth and fauces, producing minute vesicles and sloughs. In the second and third species some of the smaller blood-vessels are also eroded at the mouth, and hence the sloughs become livid or ulcerated.

All the varieties, therefore, occur only under circumstances of considerable debility; and hence, while the first is usually found in infancy, the two last are mostly an accompaniment of low fevers, old age, or cachexies.

α E. Aphtha infantum.
White-thrush.
Description.

The WHITE THRUSH, or that of infancy, commences in the mouth. The angles of the lips are usually first beset with the eruption, probably from their exertion and fatigue in the act of sucking. From these it spreads in scattered papulæ over the tongue and cheeks, till at length many of the papulæ coalesce, and the eruption appears in patches, or strata. The fauces become next affected, and it descends thence through the esophagus

Gen. II. Spec. II. α E. Aphtha infantum White thrush.

into the stomach, and travels in a continuous line through the entire course of the intestines to the rectum, the feces being often loaded with aphthous sloughs.

Travels from the mouth downwards to the intestines.

In very mild cases the disease restrains itself, or by judicious management is restrained, to the mouth, and terminates upon a single separation of the curd-like crusts. But it usually proceeds farther; and a second, and even a third crop, takes the place of that which disappears. The general health is, in the mean time, but little disturbed, though the stomach evinces acrimony, the pulse is often a little quickened, and the infant is rendered fractious. But in an unhealthy habit, when the food is innutrient, and the frame weak and atrophous, the under-surface of the vessels ulcerate, the ulceration spreads wider and deeper, a low fever ensues, and the little patient sinks beneath its malignancy.

Sometimes terminates in the mouth with a single crop of eruption. But usually migrates and appears in a second or third crop. Has sometimes proved fatal.

In the mildest form this eruption seems to be highly acrimonious; for the nipple of the nurse is sure to be affected. There is little doubt, moreover, that the acrimony is specific and contagious: though, in order to multiply itself and preserve its peculiar powers, it seems necessary that it should come into close union with the same membrane, or a membrane of the same structure as that which originates it. Hence the nipple, though corroded by the sharpness of the humour, does not produce aphthæ, nor does the ulceration spread beyond the reach of the acrid ichor: but it has been received by kissing the infected lips of an infant; and has in this manner propagated itself to adults as well as to children.

Fluid highly acrimonious and erosive. Probably specific and contagious. Hence propagable by kissing.

But, beyond this, we have good authorities for believing it at times to be epidemic. For not only all the children of the same family, how cautiously soever separated from one another, but many of those of the same neighbourhood, have been known at times to suffer from it simultaneously. Yet whether in this case the epidemy be the result of the specific matter of the exanthem, floating as an undissolved miasm in the atmosphere, or

Sometimes epidemic.

Gen. II.
Spec. II.
α. E. Aphtha infantum.
White thrush.

whether any particular intemperament of the atmosphere itself predispose the body to the generation of aphtha, is unknown.

Curative intention.

Health of the nurse to be inquired into.

Nature and preparation of the food.

Detergent gargles.

Inviscating astringents:

but not too irritant.

In the cure of this species our first object should be to remove all acrimonious materials from the primæ viæ by a laxative or emetic, or both, and thus, as far as we can conjecture concerning it, root out the primary source of disease. We must at the same time carefully examine the health of the nurse of the infant, if the infant be at the breast, and particularly as to the nature of the milk, and the freedom of the nipple itself from all primary disease, so that the child may not have a foundation laid for it in this quarter. If the child be weaned, we must be particularly attentive to the nature of the food, and the mode of its preparation, concerning which nurses, when left to themselves, are often too careless. And we have next to prevent the multiplication of the papulæ by syringing off the acrimonious fluid as well as we are able with diluting or detergent gargles, and expediting the separation of the sloughs by inviscating astringents, as bole armenic, alum, borax or catechu, intermixed with mucilage or honey. These astringents however must not be made very sharp; for in this case we shall hurry off the little sloughy curds too rapidly, irritate the tender surface of the new skin, and produce a new crop of eruption; which is perhaps excited more frequently by being thus too busy and precipitate than by any other means whatever. If the disease have descended into the stomach and intestines, a mixture of rhubarb and magnesia given occasionally will be the best medicine with which we can follow it up.

β E. Aphtha maligna.
Black thrush.

How produced.

The second variety, or BLACK THRUSH is sometimes found idiopathically in old age when all the vital resources are failing, and the constitution is sinking apace; but it is more commonly a concomitant on acute debilitating diseases; as in typhous or malignant remittents. Stoll affirms that in all these cases the disorder commences not in the mouth as in infants, but in the stomach, and

Gen. II. Spec. II. β E. Aphtha maligna. Black thrush.

Works upwards from the stomach.

Said to be at times epidemic and contagious: but perhaps only as connected with other contagions or epidemics.

works its way both upwards and downwards*; and, from the pain and cardialgia that are often complained of antecedently, there seems ground for this opinion. Birnstiel makes the same remark, and compares the feeling to that of a tense cord extending from the cardia to the navel†. This variety is also said to be at times epidemic and, by some, contagious. But it should be observed that in most of these cases aphtha has appeared as a concomitant of other diseases, and probably as the result of them. Thus when it is affirmed by Muguet to have been decidedly contagious at Paris on a particular occasion‡, an alarming typhus seems to have been present also. Stoll gives the same account of it, but it was then united with miliary fever§; and on another occasion, when it appears to have had pretensions to an epidemic range, it was combined with a prevailing intermittent‖.

Treatment.

In all these cases the mode of treatment must depend upon the nature of the particular case. In the drooping of old age we can only palliate; and our best palliatives will be cordials, as port-wine negus, or wine itself, and stimulating nutritive food: where the aphtha is dependent upon some other affection it can only be remedied by remedying the parent disorder.

In very cold northern and especially in cold marshy climates aphtha in one of its varieties is said to occur frequently in all ages, and often without fever. As we have already seen that it is very generally the result of a reduced state of health and vigour, this is by no means improbable; and the best means of opposing it is warmth, a pure and unstagnant air, exercise, and a generous diet.

γ E. Aphtha chronica. Chronic thrush.

The third variety, or CHRONIC THRUSH seems chiefly

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* Rat. Med. 167.

† Sterblichkeil im Krankenhaus zu Bruchsal.

‡ Raulin, Von Erhaltung der Kinder.

§ Loco citato.

‖ Fontanus, Annal. p. 59.

Gen. II. Spec. II. γ. E. Aphtha chronica. Chronic thrush.

also to have its first seat in the stomach, or some adjoining viscus.

It has been described by Hillary under the name of aphthoides *chronica*, and more lately by Dr. Latham under that of cachexia *aphthosa*. It is more frequently found in hot than in temperate climates, from the inroad which is so often made upon the strength of the constitution by the permanent excitement of the climate.

Description by Latham.

"A slow hectic fever," says Dr. Latham, "with a pulse weak, and a little quicker than natural, marks the commencement of this disease. Pimples on the edges of the tongue, with superficial blisters within the mouth and fauces, next succeed, and a corresponding heat and soreness of the stomach more or less accompany this and every stage of the disease*." The whole intestinal canal soon afterwards becomes affected, and diarrhœa, and not unfrequently dysentery, are the consequence. The irritation then subsides, as though the disease had worn itself out, but there is not vigour enough in the constitution to heal the exulcerations; and, the original cause continuing, fresh exacerbations take place, and every symptom is more aggravated; usually accompanied moreover with a fearful despondency. These repeated recurrences gradually exhaust the system, and the patient at length sinks beneath their persevering assaults.

Exciting causes.

Dr. Thomas has given a good account of this affection as it has occurred from time to time in the West Indies: and ascribes it to general relaxation, exposure to cold combined with great moisture, obstructed perspiration, and an acrimony of the humours†. And hence many of its causes, as well as most of its symptoms, are those of the preceding variety.

Treatment.

During the exacerbations opium seems to afford the best relief; while in the intermissions light bitters and other tonics should be had recourse to. For the distressing irritation that often exists in the throat and rectum Dr. Latham is bold enough to recommend gargles and injections of diluted litharge-water; the latter in combination with laudanum.

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* Med. Trans. Vol. v. Art. vi.

† Modern Practice of Physic, p. 528.

Gen. II. Spec. II. Gargles and injections of litharge and laudanum.

SPECIES III.

EMPHLYSIS VACCINIA.

Cow-pox.

VESICLES FEW OR A SINGLE ONE; CONFINED TO THE PART AFFECTED; CIRCULAR, SEMITRANSPARENT, PEARL-COLOURED; DEPRESSED IN THE MIDDLE: SURROUNDED WITH A RED AREOLA.

This disease attracted attention in the county of Dorset about forty or fifty years since, as a pustular eruption derived from infection, chiefly showing itself on the hands of milkers who had milked cows similarly disordered. It had been found to secure persons from the small-pox; and so extensive was the general opinion upon this subject even at the time before us, that an inoculator, who attempted to convey the small-pox to one who had been previously infected with the cow-pox, was treated with ridicule. A formal trial was made however and it was found that no small-pox ensued. About the same time a farmer of sagacity of the name of Nash, duly attending to these facts, had the courage to attempt artificial inoculation on himself; and the attempt is said to have succeeded completely. Similar facts and numerous examples of them were accordingly communicated to Sir George Baker, who, having engaged not long before in a most benevolent though highly troublesome con-

Gen. II. Spec. III. History. First distinctly noticed half a century ago as a prophylactic against small-pox.

Facts communicated to Sir George Baker;

GEN. II. SPEC. III. Emphlysis Vaccinia. Cow-pox; but not acted upon.

troversy respecting the cause of the endemial cholic of Devonshire, was unwilling, notwithstanding his triumph, to tread again the thorny paths of provincial etiology. Gloucestershire, however, another dairy county, had witnessed the same disease with similar consequences; and the same opinion generally prevailing in distant districts of both counties afforded proof that the power thus ascribed to cow-pox was not wholly visionary*.

Subject taken up by Jenner.

Dr. Jenner, then resident at Berkley in Gloucestershire, pursued this hint with great judgment and unabated ardour. He was at first foiled by not distinguishing between the genuine cow-pox, and an ineffective modification of it, or a spurious disease of nearly a similar appearance, to which the same animal is subject, but which is no preservative against the small-pox; and found another difficulty in determining the period of time within which the vaccine virus maintains its prophylactic power. Having at length, however, made himself master of the distinctive characters of the genuine vesicle, he ventured to publish the discovery in 1798, and to recommend inoculation with the virus of vaccinia as a substitute for variola. The result is known to every one: the discoverer has been justly and liberally remunerated by parliament, and vaccine inoculation has passed with rapid progress over every quarter of the world, from the arctic circle to the extremes of Asia and Africa; and been adopted by civilized and uncivilized nations, by blacks as well as by whites, by the Fin, the Hottentot, and the Hindoo.

Difficulties he had to encounter.

Publishes his discovery in 1798.

Rewarded by parliament: rapid and extensive progress of vaccine inoculation.

The disease in its present state may be said to embrace the four following varieties:

α Nativa. Natural cow-pox.	Genuine cow-pox as it ordinarily appears on those who accidentally receive it from the affected cow.

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* Evidence delivered before the Committee of the House of Commons.

Gen. II. Spec. III. Emphlysis Vaccinia. Cow-pox.

β Spuria. Spurious cox-pox.	An ineffective modification of cow-pox, or a different but resembling disease incapable of preserving against small-pox.
γ Inserta. Inoculated Cow-pox.	The genuine cow-pox as it appears on inoculation.
δ Degener. Degenerate Cow-pox.	Cow-pox degenerated in its specific power of preservation from unknown causes.

α E. Vaccinia nativa. Natural cow-pox. Distinctive characters.

In the NATURAL FORM OF COW-POX, or as immediately received by milking or otherwise handling a diseased animal, the vesicles are more or less numerous, and appear on the hands or such parts as have been in contact with the affected udder; of a blueish tint; the fluid at first limpid; afterwards opake and purulent; often with enlargement of the auxiliary glands, and considerable fever.

Description in the human subject:

Most frequently the vesicles make their appearance about the joints, or extremities of the fingers; their figure is circular, and there is a slight dip from the circumference to the center. The fever opens with its usual symptoms of lassitude, pain in the head, limbs, and loins, rigor, vomiting and a quickened pulse; the head sometimes continues affected after these preparatory signs have gone off, and is even accompanied with delirium. The inflamed and ichorous tubercles having suppurated, burst in three or four days from distension, and become troublesome sores, healing slowly, and occasionally assuming a phagedenic appearance. The fever in the meanwhile abates and ceases altogether about the seventh day. The fluid discharged from the ulcers is highly contagious; and the eye-lids, lips, nostrils, or any other part of the body, is sure to become inoculated with it if scratched or rubbed with the fingers accidentally charged with the matter.

in the cow.

In the affected cow itself the tubercles are still larger, or rather consist of vesicles surrounded by a broad

Gen. II. Spec. III. and circular erythema: the animal droops considerably and yields but little milk. The ulcers are foul and often obstinate.

ϛ E. Vaccinia spuria. Spurious cow-pox. Distinctive characters. In the SPURIOUS COW-POX, or the disease to which cows are subject, that bears a near resemblance to the genuine, and is often confounded with it though destitute of its prophylactic power, the vesicles are less uniformly circular; purulent from the first; without the blueish tint; with little or no central depression. Whether this, in the animal itself, be strictly a variety of a common species, or a distinct species of a common genus, has not been accurately determined. But it is now fully ascertained that this affection of the cow produces no security by inoculation, and was the cause of much confusion and many failures at first, and possibly may be of some in the present day. Produces no security against small-pox.

γ E. Vaccinia inserta. Inoculated cow-pox. Descriptive characters. In the INOCULATED COW-POX from genuine virus, the pathognomic signs are the following: vesicle single confined to the puncture; cellulose; blueish brown in the middle; fluid clear and colourless to the last; concreting into a hard, dark-coloured scab after the twelfth day.

Time limited for taking the fluid. In propagating the disease from the inoculated vesicle the fluid should be taken before the ninth day, and from as early a period as it can be obtained. After the ninth day it is usually so inactive as not to be depended upon.

If the fluid be not transparent, it forms a decisive proof either that it is spurious or imperfect. Test of genuineness from transparency. The puncture should be made as superficially as possible; for if much blood be drawn the fluid may become so diluted as to be rendered ineffective, or may be entirely washed away. Puncture should be superficial.

As small-pox by inoculation is uniformly a far milder disease, and accompanied with a smaller crop of pustules than when received naturally, cow-pox by inoculation undergoes a like change. Inoculated cow-pox milder than in its natural state. There is sometimes a little increased quickness of pulse and constitutional indisposition; and, in very rare instances, a few pustules have been thrown forth around the areola or even on the limbs; but with these occasional exceptions, the eruption, as already noticed, is confined to the single vesicle produced

Gen. II. Spec. III. γ E. Vaccinia inserta. Inoculated cow-pox.

by the puncture, and there is scarcely any perceptible fever.

Progress of the disease.

Advance of the vesicle.

The general progress is as follows. The puncture disappears soon after the insertion of the lancet: but on the third day a minute inflamed spot becomes visible. This gradually increases in size, hardens, and produces a small circular tumour slightly elevated above the level of the skin. About the sixth day, the center of the tumour shows a discoloured speck formed by the secretion of a minute quantity of fluid; the speck augments in size and becomes a manifest vesicle, which continues to fill and to be distended till the tenth day: at which times it displays in perfection the peculiar features that distinguish it from the inoculated variolous pustule. Its shape is circular, sometimes a little oval; but the margin is always well defined, and never rough or jagged; the center dips instead of being polarised, and is less elevated than the circumference.

Constitutional affection.

About the eighth day, when the vesicle is completely formed, the disease exhibits something of a constitutional influence; the arm-pit is painful, and there is perhaps a slight head-ache, shivering, lassitude, loss of appetite, and increase of pulse. These may continue in a greater or less degree for one or two days, but always subside spontaneously, without leaving any unpleasant consequence. During the general indisposition the vesicle in the arm becomes surrounded with a circular inflamed halo or areola, about an inch or an inch and a half in diameter, which is the pathognomic proof of constitutional affection, how slightly soever the internal symptoms may show themselves. After this period the fluid in the vesicle gradually dries up; the surrounding blush becomes fainter, and in a day or two dies away imperceptibly; so that it is seldom to be distinguished beyond the thirteenth day from inoculation. At this time the vesicle hardens into a thick scab of a brown or mahogany colour; and if not separated antecedently by violence or accident, falls off spontaneously in about a fortnight, leaving the skin beneath perfectly sound and

Gen. II. Spec. III. γ E. Vaccinia inserta. Inoculated cow-pox. Therapia.

uninjured. The entire progress of the inoculation scarcely opens a door to any medical treatment whatever. No preparatory steps are called for, as in small-pox; and all that can be necessary is a dose or two of some aperient medicine if the constitutional indisposition should be severe or troublesome.

δ E. Vaccinia degener. Degenerate cow-pox.

There is a variety of vaccinia, denominated DEGENERATE COW-POX by Dr. (now Sir Gilbert) Blane in his evidence upon this subject before the Committee of the House of Commons, of which the following may be regarded as the character. Produced by inoculation; vesicle amorphous or uncertain; fluid often straw-coloured, or purulent; areola absent, indistinct or confused with the vesicle; scab formed prematurely. The cause of this degeneracy has not yet been sufficiently pointed out; but it is now well ascertained that inoculation from this species will not prevent the small-pox; and hence a variety of mistakes in the early practice before the fact was discovered.

Distinctive characters.

Cause of the degeneracy not known.

Possesses no prophylactic power.

Vaccine virus undergoes a spontaneous change from various causes.

Vaccine virus seems to undergo a spontaneous alteration in a certain period of time, whatever be the caution with which it is preserved; but there are some circumstances that seem to favour this alteration more than others, although we know but little of the nature of these circumstances. Even in passing through the human subject in the form of inoculation it appears to be modified and to be rendered milder: for a person immediately inoculated from the affected cow uniformly suffers more than one person inoculated from another. It has been proved however that the fluid loses nothing of its specific power after a long series of transmissions from individual to individual; for cows have been inoculated with it in this state of repeated descent, and have exhibited the disease in all its natural violence. Yet if the second variety be a modification of this disease, and not a distinct eruption, it affords proof of a change in the qualities of the virus taking place in the animal itself from some undiscovered cause.

It ought also to be stated that the genuine cow-pox itself has not proved a permanent prophylactic in particular habits or idiosyncrasies, of the nature of which however we know nothing. But the cases in which it has failed are very few; and in almost every instance the small-pox occurring afterwards seems to have been changed from its natural course, and rendered milder and of shorter duration; the pustule rarely exceeding the fifth day before it has begun to turn; and the fluid generally passing at once from an ichorous or limpid into a concrete or indurated state without the intervention of pus. While therefore the absolute infallibility of the prophylactic power of cow-pox inoculation is no longer to be maintained, enough still remains in support of its pretensions of being one of the most important discoveries in medicine, and one of the greatest blessings that has ever been conferred on mankind; as has been sufficiently proved in an admirable article published by the French Imperial Institute, and drawn up by three of its brightest ornaments, M.M. Berthollet, Percy, and Halle, of the date of August 17, 1812.

Gen. II.
Spec. III.
Emphlysis
Vaccinia.
Cow-pox.

Genuine cow-pox has sometimes failed in preventing small-pox; but still influences its character, and renders it milder.

For the failure of success in many hundreds of instances that have been triumphantly brought forward by its enemies, there is no difficulty in accounting; but there are others which are not to be disposed of in the same manner, and which irrefragably establish its inefficacy from causes that elude all explanation. The real merits of the case are summed up with great candour and judgment in the following passage of the last report of our own National Vaccine Establishment. "After every reasonable deduction, we are compelled to allow, that too many cases still remain on undeniable proof to leave any doubt that the pretensions of vaccination to the merit of a perfect and exclusive security in all cases against small-pox were admitted at first rather too undeservedly. Yet the value of this important resource is not disparaged in our judgment: for, after all, these cases bear a very small proportion to the number of those who are effectually protected by it."—Eight only are stated by the metropolitan stations out of nearly 67,000

Many cases of failure may be accounted for: but by no means all.

General merits of the case as given in a late report of the national vaccine establishment.

GEN. II. SPEC. III. Emphlysis Vaccinia. Cow-pox.

vaccinated since the establishment of the board: and "we have undoubted proofs from experience, that where vaccination has been performed perfectly, small-pox occurring after it is almost universally a safe disease; and though ushered in by severe symptoms, has hardly ever failed to be cut short before it had reached that period at which it becomes dangerous to life*."

Singular case in which vaccination produced no influence on subsequent small-pox.

The only case that has ever occurred to myself in which vaccination has not seemed to produce any influence whatever upon the character of subsequent small-pox, is one I am attending while writing these pages. The patient is Mr. Alfred Phillips, of Christ's College, Cambridge, about twenty years of age, who was vaccinated when an infant by Dr. Jenner. The eruption is of the distinct variety, but, for this variety, as full as possible over the whole of the face, body, and limbs; the fever has been very considerable, and every part is severely hot, sore, and tumefied, so that the eyes are nearly closed, and always opened with difficulty in the morning: and the spaces between the pustules, which, however, are few and small, are of a fiery red. The pimples made their appearance on the third day from the accession of the fever; they have maturated regularly, and are at this time, which forms the eighth day of eruption, very large, and a few of them just beginning to turn brown on the apex, so that it will not be necessary to follow up the description any further.

Other animal poisons may possibly also possess a like power, as grease in the heels of horses, supposed by Jenner to

It is possible that there are other animal poisons which may in like manner act as a prophylactic against small-pox, and destroy the susceptibility to this disease in the human frame: for the same effect seems to have followed upon inoculation with the sanious discharge from the heels of horses afflicted with the disease called *grease*. And Dr. Jenner, who, on his first directing his attention to the nature and effects of cow-pox, applied himself also to this subject, felt persuaded at that period

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[*] Report of April 12, 1821.

Gen. II. Spec. III. Emphlysis Vaccinia. Cow-pox. be the source of cow-pox, but erroneously.

that the two fluids of cow-pox and of grease from the heel of a horse, are precisely the same, and capable of affording a like emancipation. He conceived the sanious fluid of the grease to be the original disease, and the cow-pox in the cow itself to be nothing more than a casual inoculation produced by the cow's lying down in a meadow where the affected horse had been previously feeding, and her udder coming in contact with the discharge which had dripped on the grass and lodged there: and he endeavoured to show the identity of the fluids by the identity of their effects in respect of the small-pox.—So far as can be judged from the few cases before us, performed indeed in different countries, but still few in respect to the number necessary to establish a positive proof, grease-pox seems to have succeeded as well as cow-pox; and it is hence possible that there may be, as already observed, other animal poisons possessed of a similar power. But it is not necessary to search for them; none can surpass, and none be expected to equal, the cow-pox process in respect to cleanliness, simplicity, and little disturbance to the system; while on the contrary, the mere idea of using the matter of grease from the horses' heel, excited from the first so deep and extensive a disgust that cow-pox inoculation had nearly fallen a sacrifice from the supposed union of the two diseases. It was fortunate, therefore, for Dr. Jenner, and the triumph of his discovery, that a minuter attention to the subject gave sufficient proof that there was no foundation for his opinion: and that, whatever be the prophylactic power of the matter of the disease called grease, this disease is by no means the origin of the natural cow-pox, and has no connexion with it.

But other prophylactics unnecessary.

SPECIES IV.

EMPHLYSIS VARICELLA.

Water-Pox.

VESICLES SCATTERED OVER THE BODY; GLABROUS; TRANSPARENT; PEA-SIZED; IN SUCCESSIVE CROPS; PELLICLE THIN; ABOUT THE THIRD DAY FROM THEIR APPEARANCE BURSTING AT THE TIP, AND CONCRETING INTO SMALL PUCKERED SCABS, RARELY LEAVING A CICATRIX.

Gen. II. Spec. IV.

The water-pox appears under the three following varieties, distinguished chiefly by the shape of the pimple:

α Lentiformis. Chicken-pox.	Lentile-shaped, or irregularly circular, flattened at the top; fluid at first pellucid, then whitish; afterwards straw-coloured.
β Coniformis. Swine-pox.	Vesicles acuminated; fluid pellucid throughout.
γ Globularis. Hives.	Vesicles globular and larger; fluid at first whey-coloured, afterwards yellowish.
δ Corymbosa. Clustering water-pox.	Vesicles clustering upon a common, but broader base; redder at the first, and later in appearance; febrile symptoms outlasting the eruption.

Varieties occasionally intermixed:

Several of the varieties are sometimes intermixed, and the fluid about three days after the eruption occasionally becomes thickish as well as yellowish in the first and third, and possesses a purulent appearance; whence, in various instances, they have been mistaken for the small-pox. The eruptive fever in chicken-pox is also sometimes considerable; and hence, another cause of the same mistake, a mistake that has not unfrequently led to serious and even fatal consequences, by putting those who have had the disease off their guard against variolous infection. And where this error has been committed, and the small-pox has afterwards been received, it has led to a second mistake, by inducing the patient to believe that he has had the small-pox a second time.

and sometimes mistaken for small-pox.

Hence occasionally serious evils.

The two diseases, indeed, were long confounded by physicians of the highest character: they were regarded as alike by Morton; and even in Sauvages, varicella is described under the name of variola *lymphatica*. It is now, however, thoroughly ascertained to originate from a peculiar specific contagion; and the characters by which it is sufficiently distinguished from small-pox are, that its fluid, except in a few anomalous cases, is limpid throughout; and that as early as the third or fourth day from the eruption it concretes into crusts, which are thrown off without indenting the cutis: while in small-pox the fluid consists of pus as soon as formed, and does not concrete into crusts till the seventh day, and often much later. Like the small-pox it does not attack the same person a second time, excepting in a few anomalous constitutions, that establish rather than oppose the general rule. "I wetted a thread," says Dr, Heberden, "in the most concreted pus-like liquor of the chicken-pox which I could find, and after making a slight incision, it was confined upon the arm of one who had formerly had it: the little wound healed up immediately, and showed no signs of any infection*."

The two diseases formerly often confounded.

Chicken-pox distinguished from small-pox.

In the ordinary course of the first three varieties the pyrectic symptoms are so slight as not to require medical attention: and sometimes there is no fever whatever.

Fever often slight;

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* Medical Transactions, Vol. I. Art. XVII.

Gen. II. Spec. IV. Emphlysis Varicella. Water-pox.

The eruption makes its appearance chiefly on the back, and is often confined to it; and the general number of vesicles vary from 20 to 200. I have sometimes, however, known the eruption preceded by almost as severe febrile signs of shivering, sickness, head-ache, and pain in the limbs, as that of small-pox, but the symptoms have always subsided when the vesicles have appeared.

but not always.

Treatment.

In this case an active purge should be administered, succeeded by some diluting drink; and the patient should be confined to a quiet, spacious and well ventilated room, with a cool dress, till the febrile symptoms have left him.

Corymbose variety copied from Heberden.

For the fourth variety I am entirely indebted to the observant and indefatigable eye of Dr. Heberden; for it has never occurred to me, nor is it to be found in the tables of the Nosologists. "This disorder," says he, "is preceded for three or four days by all the symptoms which forerun the chicken-pox, but in a much higher degree. On the fourth or fifth day the eruption appears, with very little abatement of the fever; the pain likewise of the limbs and back still continues, to which are joined pains of the gums. The pocks are redder than the chicken-pox, and spread wider, and hardly rise so high, at least not in proportion to their size. Instead of the little head or vesicle of the serous matter, these have from four to ten or twelve. They go off just like the chicken-pox, and are distinguished from the small-pox by the same marks, besides which the continuance of the pains and fever after the eruption, and the degree of both these, though there be not above twenty pocks, are, as far as I have seen, what never happen in the small-pox*."

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* Med. Trans. ut supra.

SPECIES V.

EMPHLYSIS PEMPHIGUS.

Vesicular, or Bladdery Fever.

VESICLES SCATTERED OVER THE BODY; TRANSPARENT; FILBERT-SIZED; WITH A RED INFLAMED EDGE, BUT WITHOUT SURROUNDING BLUSH OR TUMEFACTION; ON BREAKING, DISPOSED TO ULCERATE; FLUID PELLUCID, OR SLIGHTLY COLOURED; FEVER A TYPHUS.

Gen. II. Spec. V. Origin and import of the specific term.

Whether an idiopathic disease; a variety of erysipelas, or pompholyx?

The term pemphigus is derived from the Greek πέμφιξ, "flatus, bulla," and hence *inflation*, bladder, bubble. The idea of flatulency, however, is seldom connected with this disease in modern medicine, though very generally in ancient. The term, in the sense in which it is now commonly understood, was, perhaps, first employed by Sauvages; and has since passed into common use. It is still doubted by many whether pemphigus is entitled to be considered as a distinct and idiopathic disease; and whether all its varieties and modifications may not resolve themselves into certain peculiarities of erysipelas or pompholyx, the latter of which consists of similar vesicles, or bullæ, without fever; or into mere symptoms of typhus or plague. Gulbrand appears to have been of the former opinion; and hence he has denominated the disease erysipelas *vesiculare**: Dr. Cullen seems to have been of the latter at the time of drawing up his definition, and still later, at that of drawing up his First Lines, in consequence of which he dismisses it in a single paragraph as an affection con-

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* Act. Soc. Med. Hafn. Tom. I.

Gen. II. Spec. V. Emphlysis Pemphigus. Vesicular, or bladdery fever.

cerning which he can say nothing. But the fourth edition of his Synopsis contains a subjoined note, which intimates that his opinion was altered in consequence of his having seen a patient shown him by Dr. Home, and who was labouring under this disease, as an idiopathic affection, at the time. And when to this we add the authority, not merely of the earlier writers, Bontius, Seliger, and Langhans, but of Withers, Clarkson, Christie, Ring, Braune, and Dr. Stewart of Aberdeen, it would be unpardonable not to allow it a distinct place in a general system of nosology.

Upon a careful review it appears to offer the three following varieties, which run parallel with those of Dr. Willan, though not exactly taken from him:—

α Vulgaris. Common vesicular fever.	Vesicles appearing on the second or third day, occasionally not till the fifth or sixth; in successive crops; often extending over the mouth and intestinal canal; fluid, on bursting, yellowish; some of the vesicles livid, with a livid base.
β Glandularis. Glandular vesicular fever.	Preceded by tumefaction of the neck and throat; vesicles chiefly seated on the fauces and conglobate glands; occasionally producing abscesses; highly contagious.
γ Infantum. Infantine vesicular fever.	Vesicles irregularly oblong, with livid edges and commonly flattened tops; appearing successively on different parts of the surface in infants a few days after birth; on breaking, purplish.

Gen. II. Spec. V. α E. Pemphigus vulgaris. Common vesicular fever.

The FIRST VARIETY, or common pemphigus, is the pemphigus *major* of Sauvages, a very marked case of which was given in a communication of Dr. David Stewart to Dr. Duncan of Edinburgh*. It appeared on a young private of the seventy-third regiment, who had for a fortnight or three weeks antecedently been unwell from a sudden retrocession of measles produced by an exposure to cold, and afterwards to a damp unventilated apartment. He was received into the hospital at Aberdeen April 15, at which time he complained of headache, sickness, oppression about the precordia, thirst, sore throat, difficulty of swallowing; his tongue was foul, his skin hot, pulse from 110 to 120, rather depressed. The whole surface was interspersed with vesicles of the size of an ordinary walnut; especially the breast and arms. In the interstices the appearance of the skin was natural; and the distance from one vesicle to another was from half an inch to an hand's breadth or more. The disease did not appear to be contagious, as the patient was a solitary instance of it, both where he resided before and after his reception into the hospital. His chief medical treatment consisted in bark and port-wine with acidulated drinks: many of the vesicles broke, and discharged a bloody and most offensive ichor; the cutis, upon a rupture of the vesicles, was for the most part sound, of a deep red hue, and in some places livid. A new cuticle was gradually produced: and on April 27, being twelve days from his reception into the hospital, he was dismissed perfectly cured.

Description.

Treatment.

General remarks.

In this case the bullæ do not seem to have reached below the throat in an internal direction; nor lower than this region in the severer case described by Seliger. In the first instance, the vesicles appeared abruptly, and had bursted and were healed in seven or eight days. In Seliger's case they issued more gradually, and in successive crops, ran through a longer period, and were not healed

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* Edinb. Med. Comment. Vol. VI. p. 79.

Gen. II. Spec. V. α E. Pemphigus vulgaris. Common vesicular fever.

till the twenty-first day *. In a case apparently of the same kind, published by Dr. Dickson in the Transactions of the Royal Irish Academy, there is evident proof of their having extended from the fauces thoughout a considerable part of the alimentary canal: here also the vesicles appeared in successive crops, especially on the ninth, tenth, and thirteenth day, each crop continuing four or five days before it bursted; the fever was accompanied with delirium, but abated on the fifteenth day on the appearance of the catamenia, and the bullæ healed in succession without any trouble †. None of these appear to have been contagious.

I cannot speak of pemphigus from personal knowledge; but in all the above instances the fever was of a low or typhous type; and the disease seems to have approached the nature of erysipelas, as it was treated successfully by the means usually employed for the latter.

ϐ E. Pemphigus glandularis. Glandular vesicular fever.

For what little knowledge we possess of the second or GLANDULAR VARIETY, the contagious pemphigus of Dr. Willan, we are chiefly indebted to Dr. Langhans, a Swiss physician, who observed it in the spring and through the summer of 1752 in the low-lands of his own country ‡.

Description.

It commenced with a sense of tension in the fauces, and a slight pain spreading behind the ears to the anterior part of the thorax, accompanied with the symptoms that mark the first stage of fever, but not succeeded by a hot fit. A greenish bilious matter was sometimes thrown up from the stomach, and the pulse was feeble. The neck swelled externally and internally about the fauces, bullæ were observed of the size of a filbert, producing little pain, and containing a yellow ichor of an offensive smell. Soon afterwards similar vesicles were found scattered sparingly over the body and limbs, which, if not broken or opened, collapsed in the second, third, or fourth day, and dwindled into whitish crusts. During this period

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* Ephem. Act. Nat. Cur. Dec. I. Ann. viii. Obs. 56.

† Vol. I. 1787.

‡ Act. Helvet. Tom. II. p. 260.

Gen. II. Spec. V. ϵ E. Pemphigus glandularis. Glandular vesicular fever.

the tumour of the neck often suppurated, or other suppurating tumours formed in some of the conglobate or conglomerate glands, as the parotid, axillary or inguinal; and the virus of the disease being thus discharged by different outlets on the surface of the body, the patient recovered. But if before this translation to the surface, there were a sense of weight and anxiety about the thorax, a large abscess was formed internally, and on its bursting the patient died from suffocation. Or if the matter, lodged in the external vesicles, were by accident repelled before any glandular suppuration took place, he died almost as suddenly.

Has disappeared like the sweating sickness.

M. Langhans compares this disease to syphilis, but apparently with little reason; and Dr. Cullen and Dr. Frank with not much more to rosalia *paristhmitica*. The cause, like that of the sweating-sickness, is altogether unknown, and like this disease also, after having ravaged with great fatality for a certain but a shorter period of time, happily for Switzerland, and perhaps for all Europe, it vanished, and has been heard of no more. Sauvages, indeed, quotes a description of pemphigus from Thiery, which, by some writers, has been supposed to be the same; but the account is so brief, and at the same time so loose and indistinct, that it is impossible either to arrange or reason about it.

Was epidemic, contagious, and very fatal.

The glandular pemphigus of Switzerland, according to M. Langhans, was both contagious and epidemic; so contagious, indeed, as to spread through numerous families with great rapidity, and so malignant that all persons affected by it died. This last assertion, however, compared with what follows, appears to be a little overcharged; for the author proceeds, as already observed, to point out under what circumstances patients recovered from it; and lays down a remedial process, which, "though at first," says he, "I employed it with anxiety and hesitation, I can now with pleasure recommend to all persons labouring under the complaint with the most sanguine hope that it will effect a speedy cure."

Gen. II. Spec. V. ζ E. Pemphigus glandularis. Glandular vesicular fever. Treatment.

This successful practice, as in the sweating sickness, consisted in exciting a strong determination to the surface by active sudorifics; and at the same time supporting the strength with camphor and other cardiacs. He commenced his process, however, by venesection, which was sometimes repeated, and, where there was danger of an abscess in the lungs, unquestionably with great judgment.

γ E. Pemphigus infantum. Infantile vesicular fever. Description.

The INFANTILE PEMPHIGUS appears, as already noticed, most commonly a few days after birth; but in one case adverted to by Dr. Willan, as late as ten months after this period. The vesicles show themselves on the neck, upper part of the breast, abdomen, groin, scrotum, and inner parts of the thighs. They arise successively, break, and expose a surface that heals with difficulty; and more generally enlarges its boundary, and wears out the little patient with pain, restlessness, and want of sleep.

Curative process.

Warm cordials, as camphor and the aromatic confection, with a little port-wine-negus, form the best means of supporting the strength, and giving success in the struggle: and laudanum must be had recourse to where the want of sleep requires it.

SPECIES VI.

EMPHLYSIS ERYSIPELAS.

St. Anthony's Fire.

VESICATION DIFFUSE; IRREGULARLY CIRCUMSCRIBED; APPEARING ON A PARTICULAR PART OF THE BODY, CHIEFLY THE FACE, ABOUT THE THIRD DAY; WITH TUMEFACTION, AND ERYTHEMATIC BLUSH: FEVER USUALLY ACCOMPANIED WITH SLEEPINESS, OFTEN WITH DELIRIUM.

GEN. II. SPEC. VI. Distinction between the present disease and erythema. Illustrated.

IN describing the genus erythema, I endeavoured to point out a distinctive line between that inflammation and erysipelas, which are so often intermixed and confounded even by good writers; and observed that the first bears the same analogy to phlegmon, as the last to small-pox. Phlegmon is local inflammation tending to suppuration; erythema local inflammation tending to vesication: small-pox is an idiopathic fever producing a phlegmonous efflorescence; erysipelas an idiopathic fever producing erythematic efflorescence. Small-pox is always contagious; erysipelas occasionally so: phlegmon and erythema have no such tendency.

Often confounded with cutaneous diseases.

The varieties of this species are very differently given by different writers; by many of whom they are multiplied most unnecessarily. Dr. Cullen makes even the herpes *zoster*, or shingles, a variety; but this is strangely to confuse simple cutaneous diseases with idiopathic fevers. For that erysipelas, when genuine, is an idiopathic fever dependent upon or productive of a specific virus is clear, because it has often, though not generally, been found contagious, and is capable of propagation by inoculation. "When the acrimonious lymph," observes

Distinctive characters. Is contagious.

Gen. II. Spec. VI. Emphlysis Erysipelas. St. Anthony's fire. Facts in proof of this offered by Willan:

Dr. Willan, "contained in the phlyctænæ or vesications of a genuine erysipelas, is inoculated or casually applied to any slight wound in a person otherwise healthy, it produces febrile symptoms, with a red and painful but diffuse swelling, analogous to that of the disease from which the virus was derived *." And he has added a case, in which the mother of a young girl severely affected with this disease appears to have received it in consequence of having nursed her.

by Wells:

Dr. Wells has strengthened the doctrine of its contagious property by a variety of facts and cases that can scarcely, I should think, be read by any one without conviction †. One of his examples extends to four individuals, who received the disease in succession after direct contact or near approximation with each other; and another gives us a like line of not less than six in descent, all of whom, indeed, he did not attend personally, but the history of whom, as communicated to him by one of the affected, was confirmed by Dr. Pitcairn, who had been consulted by two of the rest, and was privy to the general fact. Dr. Pitcairn also communicated to Dr. Wells the following highly important statement in addition: "A lady immediately after delivery was attacked with a fever which was accompanied with an affection of her skin somewhat like erysipelas; her child, about three days after its birth, was seized with that species of erysipelas the French call *la gelûre*, which first appeared about the pudenda, and afterwards extended itself to other parts of the body, among the rest to the face. Both the lady and her child died after a few days illness; and about eight days after the death of the child, the lady's mother and servant maid, both of whom had attended it during its illness, were attacked with erysipelas of the face, from which both of them recovered." The opinion of Dr. Baillie, as communicated to Dr. Wells on another occasion,

by Pitcairn:

and by Baillie.

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* On Cutaneous Diseases, p. 514.

† Transact. of Soc. for the Improvement of Med. and Chir. Knowledge, Vol. II. p. 213.

Gen. II. Spec. VI. Emphlysis Erysipelas. St. Anthony's fire.

is to the same effect; to which Dr. Baillie seems to have been more especially led, by having observed in "a part of the years 1795 and 1796, that the erysipelas of the face was much more frequent in St. George's Hospital than he had ever before known it to be; that many persons were attacked after they came into the hospital, and that the number in a particular ward was much greater than in any other."

Probably at times an epidemy.

This last remark seems to give some countenance to the further opinion, that erysipelas becomes occasionally an epidemy, or operates through the medium of the atmosphere, as well as by direct contact: though whether the atmosphere, in this case, be impregnated with the specific miasm of the disease, or merely predisposes the body to a more ready generation of it, has no more been determined than in the case of various other exanthems that evince a like power. Dr. Parr asserts broadly, "we have four times seen it epidemic; and more than once we have had reason to suspect that it was communicated by infection *."

At first sight it might seem easy from these accounts to subdivide erysipelas into the two varieties of contagious and uncontagious; but as it is most probable that the power of communication depends alone upon the peculiar diathesis of the person who receives it, as being endowed with a susceptibility of the disease not possessed by others, we can make nothing of this discrepancy: and shall hence examine it under the following varieties founded upon other circumstances:

α Locale. Local erysipelas.	Limited to a particular part; the cuticle raised into numerous aggregate, distinct cells; or the cells running into one or more blebs or large blisters.

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* Dict. in verbo.

GEN. II. SPEC. VI. Emphlysis Erysipelas. St. Anthony's fire.

ϵ Erraticum. Erratic erysipelas. Travelling in successive patches from part to part: the earlier patches declining as new ones make their appearance.

α E. Erysipelas locale. Local erysipelas. Distinctive characters. Description.

The LOCAL ERYSIPELAS generally exhibits itself on one side of the face, or on some one of the limbs. In the former case the disease begins with coldness and shiverings, which alternate with irregular flushes of heat, and other symptoms of pyrexy. Dull aching pains are felt in the head, neck, and back. The swelling usually appears in the course of the second night or the third day; though I have sometimes known it take place within a few hours after the attack; the redness disappearing when pressed upon by the finger, but returning as soon as the pressure is removed. The eruption fixes itself on one side of the nose, or the cheek, temple, or forehead: is of a dark red colour, smooth and soft, and attended with a sensation of heat and tingling. The redness and swelling extend gradually over the affected side of the face; and spread, in some cases, to the scalp, and to the side of the neck or the upper part of the breast. Hence the face appears much disfigured; the mouth is drawn to one side; the eye-lids are turgid, and close up the eye, the fever increases, and is often attended with delirium. On the fourth and fifth day vesications arise on different parts of the diseased surface, especially about the centre; but with an increase rather than a diminution of the fever. The vesicles or bullæ are of different sizes, and have an irregular base. The fluid contained in them is at first clear and watery: it afterwards becomes straw-coloured or opake, occasionally slightly livid, without losing its transparency. The cuticle gives way in a few places, and the fluid oozes through the cracks. About the eighth or ninth day, and sometimes sooner, the redness changes to a brown or yellowish hue, the bullæ subside, and the cuticle dries and desquamates or scales off. Occasionally both sides of the face are affected at the same time; though generally the morbid half is separated from the sound by an exact line drawn across the forehead, down the middle of the nose to the chin. The fever subsides about the eighth or ninth day, but sometimes after its cessation it returns suddenly with as much violence as at first, and continues two or three days longer. A sanious fluid approaching the nature of pus, and which by De Preval * and other writers seems to have been mistaken for pus itself, is sometimes found in parts of the vesication: and from this circumstance Dr. Cullen has distinguished one variety of the disease by the name of erysipelas *phlegmonodes*; and has been copied by Dr. Willan. But a genuine phlegmon is never met with in erysipelas. "A circumscribed cavity," says Mr. Pearson, "containing laudable pus is never seen in the legitimate erysipelas. Where a purulent effusion happens in any considerable degree, it affords, when the part is examined, a sensation similar to that excited by a quagmire or morass. In that sort of suppuration, which sometimes supervenes to erysipelas, the cellular membrane suffers great injury, and not uncommonly the part is in a gangrenous condition †."

Erysipelas Phlegmonodes of Cullen.

Prognosis.

When the head is the seat of disease, it occasionally swells to an enormous magnitude, and, according to De Roma, the malady has proved fatal ‡. The disturbance of the constitution is less violent when the erythema appears in the extremities. The limbs most affected are the legs, in which, probably from their depending situation, the vesications fill rapidly and break within twenty-four hours from their first appearance. Salmuth relates a case in which the intumescence extended over the entire frame §: but this is extremely rare, excepting under the second or migratory form, in which it trails over dif-

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* Journ. de Med. Tom. LI. p. 315.—Eph. Nat. Cur. Dec. II. Ann. IV. p. 52.

† Principles of Surgery, § 289.

‡ Consult. Med.-Chirurg.

§ Cent. I. Obs. 32.

Gen. II. Spec. VI.

ferent parts in succession, till the whole body has been affected.

ϵ E. Erysipelas erraticum. Erratic erysipelas. Description.

In the ERRATIC VARIETY, the complaint usually, and particularly in adults, begins its attack in the face, and spreads in succession to the extremities, the patch first formed healing as fresh ones appear below. Sometimes, however, other parts are seized first; and perhaps more frequently so when this variety shows itself in infants; for here the parts about the navel are usually first affected, and the disease winds downward to the sexual organs, which are often very considerably tumefied and inflamed.

Infantile erysipelas commonly so called, what.

What, however, is usually denominated the infantile erysipelas, is more commonly a variety of gangrenous erythema, produced, in many instances, by want of cleanliness, pure air, and nutritive food. The inflammatory blush soon assumes a livid hue, and is sometimes covered with or surrounded by petecchiæ: the cuticle is separated to a considerable extent from the cutis, breaks, and exposes a foul and ulcerating surface that almost immediately passes into a state of gangrene. In some instances, nevertheless, these cutaneous efflorescences are probably accompanied with a true erysipelatous fever: for in lying-in hospitals the disease is said to have proved occasionally contagious.

Erysipelas œdematodes, and e. gangrenosum of Willan, what.

The erysipelas *œdematodes*, and e. *gangrænosum* of Dr. Willan, appear to be misnamed, and consequently misplaced. They are more accurately erythemata, and have already been described under the species erythema *œdematosum*, and e. *gangrænosum*.

Causes, and pathology.

The usual causes are cold, intemperance, suppressed perspiration, and the other common excitements of fever operating upon an erythematic diathesis, and producing therefore this peculiar efflorescence in connection with the febrile attack. In almost every instance, there is evidently a diminished vascular action; and hence we meet with the disease far most frequently in persons of delicate habits, women, children, and those who have long resided in warm climates. In one instance it has

Gen. II.
Spec. VI.
β E. Erysipelas erraticum.
Erratic erysipelas.

occurred to me in a strong hearty man, of plethoric form and sanguineous temperament, well known to the world as a public character; but in this case the diet had, from boyhood, been exclusively that of vegetables from an extraordinary disgust for animal food of all kinds.

Sometimes metastatic.

Other occasional causes.

It is also said to have occurred in consequence of repelled gout *, suppressed menstruation †, and insolation, or exposure of the head to the mid-day rays of the summer sun ‡. It may possibly in some idiosyncrasies be produced by indigestible or rancid foods; and especially by shell-fishes which disagree with the stomach; though there is reason to believe that in many cases of this kind erysipelas has been mistaken for urticaria, or roseola.

Remedial course.

From this view of the subject the general mode of treatment may be expressed in a few words. Venesection was formerly recommended, and has been so of late by a few writers, but upon mistaken principles. I can conceive very few cases in which it has a chance of being serviceable; and the application of leeches always exasperates the efflorescence. We should first cool the body by gentle laxatives, and instantly have recourse to a tonic plan. The bark given largely, as long since warmly and judiciously recommended by Bromfield § and Colly ‖, has rarely failed of success. Dr. Fordyce was in the habit of giving it, in a dangerous state of the disease, in the proportion of a drachm of the powder every hour. He tried it for twenty years and with growing confidence. Where, however, there is much evening or night exacerbation, it may temporarily be dropped for some warm diaphoretic, as camphor, with small doses of James's powder, or the spirit or compound spirit of

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* Stoll, Rat. Med. v. p. 436.

† Alberti, Jurisprud. Med. III. 796.

‡ Pelargus, Med. Jahrgänge, v. 185.

§ Medical Communications, II. 4.

‖ Id. II. 3.

Gen. II. Spec. VI. Emphlysis. Erysipelas. Treatment.

sulphuric ether, in saline draughts made with the carbonate of ammonia. If the head be much affected it should be lightly covered with linen wetted constantly with vinegar and cold water, or equal parts of water and the solution of acetated ammonia: and, if the vesications ooze, they should be frequently dusted with finely powdered starch, or a powder consisting of half starch and half calamine. The diet should be light and of easy digestion. Opiates have rarely succeeded in procuring sleep; and have generally added to the mental irritation.

GENUS III.

EMPYESIS.

Pustulous Exanthem.

ERUPTION OF PHLEGMONOUS PIMPLES; GRADUALLY FILLING WITH A PURULENT FLUID; AND TERMINATING IN THICK SCABS, FREQUENTLY LEAVING PITS OR SCARS.

Gen. III. Origin of generic term.

Empyesis is a term of Hippocrates, and is to be found in the fifth book of his Aphorisms. It is derived from the Greek ἐμπυόω, or ἐμπυέω, "suppuro." The Greek writers also use, and perhaps more generally, ecpyésis, from ἐκπυόω, of similar meaning. The same distinction between the terms is made in the present system as between emphlysis and ecphlysis: the former being limited to signify pustular eruptions produced by *internal* and febrile affection, and the latter to signify those that are merely cutaneous or *superficial*, or with which *internal affection is not necessarily* associated.

The genus EMPYESIS contains not more than a single species that has yet been discovered, and that is,

EMPYESIS VARIOLA. SMALL-POX.

SPECIES I.

EMPYESIS VARIOLA.

Small-Pox.

PUSTULES APPEARING FROM THE THIRD TO THE FIFTH DAY; SUPPURATING FROM THE EIGHTH TO THE TENTH: FEVER A CAUMA: CONTAGIOUS.

Gen. III. Spec. I. History. Probably not known to the Greeks or Romans. Known in Asia earlier than in Europe. Inoculation for it practised immemorially in China. Conveyed from India to Arabia: and thence to the Levant and Europe generally.

When the small-pox first made its appearance in the world we know not. There is no substantial ground for believing that the disease was known to the Greeks or Romans. It has been thought, indeed, by some persons, that the former have glanced at it under the name of anthrax *; but the idea is too wild for serious refutation. It is far better ascertained that it existed in Asia, and especially in China, for an incalculable period before it was known in Europe; and from the accounts of the Jesuits, to which we shall have to refer more particularly presently, it his highly probable that the art of inoculation was practised throughout the Chinese empire, before the natural contagion had reached the European shores. About the middle of the sixth century it is supposed to have been conveyed by trading vessels from India to Arabia; and there is no question that the triumph of the Arabian or Saracenic arms introduced it from Africa into the Levant, Spain, and Sicily.

First description of it that has descended to the present day, in Rhazes.

The first accurate description we have of it is contained in the Almanson of Rhazes, written about the end of the ninth or the beginning of the tenth century; in which, however, he quotes from an Alexandrian physi-

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* Hahn, variolorum Antiquitates è Græcis erutæ. 1734.

cian of the name of Aaron, who had written on the same subject as early as the year 622.

No notice by him that it is contagious: and said to be renewable in the same person.

Yet it is very singular, that neither Rhazes nor Aaron, so far as their writings have reached us, make mention of the contagious property of the disease, chiefly accounting for it as produced by an ebullition of the blood, and particularly incident to the age between childhood and youth. And it is equally singular that it should be asserted by Aaron that the same person is liable to a return of it a second or even a third time, *præcipue cum sanguis sit acutus.* Has the disease undergone any change since this period so as to render those who have not had it more susceptible of its influence, and those who have had it less? In the descriptive part of the disease, little is to be added to Rhazes's statement, and, what is more singular, he recommends the cool treatment. Unfortunately, however, the doctrine of concoction and despumation of the humoral pathologists spread afterwards so widely, and was so generally supported, as to put to flight this correct and rational view of the subject; and every attempt was made, by warm clothing and the warm bath, to maturate the peccant matter and drive it in as large a quantity as possible to the surface; by which the slightest cases were violently exasperated, and too often rendered fatal.

Cool treatment recommended by the Arabians.

General pathology.

The severer the disease the sooner the pustules appear.

The severer the disease the sooner the pustules show themselves, thus completely reversing the law of scarlet-fever; a remark for which we were first indebted to the sagacious eye of Sydenham. And hence in the confluent variety the eruption appears on the second or third day, while in the distinct we have seldom any traces of it till the fourth, and often not till the fifth day.

Usually retarded in its progress by a sudden appearance of the measles.

If a patient have accidentally become impregnated with the contagion of the measles before inoculation or being exposed to the contagion of the small-pox, the latter, as we have already observed, will, generally speaking, be retarded in its progress, and not make its appearance till the measles have run through their course, upon the common law that the constitution is only affected

Gen. III. Spec. I. Empyesis Variola. Small-pox.

But to this law various exceptions. Illustrated.

with one disease at a time. But to this common law we have already pointed out various exceptions; and as gout and rheumatism sometimes co-exist, the measles and small-pox occasionally co-exist also. In the year 1769, Mr. King, of the Foundling Hospital, Dublin, inoculated forty-three children of the establishment. On the fourth or fifth day afterwards, sixteen of them sickened with the measles, and went through the disease regularly, yet the progress of the small-pox was not retarded or altered; for the pustules of the latter disease appeared as those of the former died away; and both complaints were of a mild character: a like coincidence occurred in the ensuing year, and with a like favourable termination *.

Retardation accounted for.

In this case the common law of retardation seems to have been interfered with by some peculiar constitution of the atmosphere; for the effect was general to all who were under the influence of rubeolous contagion. In other cases we have a like interference with the common law of variola, from the idiosyncrasy of individuals or some temporary but equally occult power operating upon the system. There are some persons who seem to possess a natural immunity to its influence, and pass through life without ever being infected, though they may have purposely exposed themselves to the most contaminated atmosphere. There are others, who, though incapable of being affected at one time, lose their emancipation at another. "I know an old nurse," says Dr. Huxham, "and one apothecary, who for many years attended persons, and a great number too, in the small-pox, and yet never had them; nay, many that have industriously endeavoured to catch this infection, by frequenting the chambers of the sick, have done it without effect; and yet some of these persons, some months or years after, have been seized with the small-pox†."

Some persons permanently insusceptible by nature: others insusceptible temporarily.

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* Edin. Med. Comment. Vol. III. p. 443.

† Treatise on Fevers, Small-pox, &c.

Irritability of the body to its influence as variable as a susceptibility for it.

Illustrated in the person of the author.

But not only does the susceptibility of the disease vary in degree at different times and in different persons, but the irritability of the body beneath its influence. Thus among fifty persons who receive it at the same time and undergo the same regimen, we may perhaps have as many degrees of violence; some dying beneath its severity, some escaping though with great peril, and indelibly seamed and scarred, and others evincing little fever, and a very slight eruption. The present author caught it casually in London, when a child about six years old, and passed through it with scarcely any disturbance, and not more than twenty scattered pustules.

In like manner we find, under inoculation, that while some persons throw forth a full crop, and suffer considerably from fever, others have scarcely any febrile symptoms, and no more eruption than the pustule on the puncture; the disease, in this case, exhibiting the same change as occurs in inoculated cow-pox, compared with the exanthem as received casually from the cow.

Hence the slightest eruption a sufficient security:

perhaps the best security: and why.

It was at one time doubted whether this slight appearance afforded protection for the future. There is now no longer any doubt upon the subject. But we may go beyond this, and reasonably conjecture, that those who have passed through the disease with but little inconvenience are even less exposed to future attacks than persons who have had it in the confluent form, and whose faces are marked with its ravages. For as the degree of violence depends, where there is no error in the treatment, upon the degree of irritability which the constitution manifests under the contagion, and as the irritability and susceptibility march with an equal step, he is most likely to have a renewal of the susceptibility in process of time who bears the most evident marks of a greater susceptibility antecedently.

Small-pox supposed formerly never to appear a second time in the same person.

It has indeed been conceived by very distinguished pathologists that the small-pox can never be had a second time, notwithstanding various assertions in support of this fact; and the argument is thus ingeniously put by Dr. Heberden, who was himself a disbeliever: "It would be

Gen. III. Spec. I. Empyesis Variola. Small-pox. Opinion adopted by Heberden.

no extravagant assertion to say that here in England not above one among ten thousand patients is pretended to have had it twice; and whenever it is pretended, it will always be as likely that the persons about the patient were mistaken, and supposed that to be small-pox which was an eruption of a different nature, as that there was such an extraordinary exception to what we are sure is so general a law*."

Those who have a recurrence, mostly marked by the violence of the first attack.

This remark is forcible, but the actual occurrences are in many, perhaps most of the instances appealed to, still more so. For, from the cause I have just pointed out, those who have had a repetition of small-pox have generally, if I mistake not, been able to exhibit proofs of a prior attack in pits or scars on the face or some other part of the body, manifesting the violence with which the disease ran its course, and consequently the strong predisposition of the constitution towards it, and irritability under its influence. The medical repositories are rich in cases of this kind, some of them so striking and so well established as to prohibit all doubt whatever: and in the two or three instances which it has fallen to my lot to witness I have traced the same character; for pits from the prior attack have been visible while the genuineness of the existing attack was in one instance substantiated by the test of inoculation. That erroneous statements upon this subject have been very numerously given to the world is unquestionable; among which we can find little difficulty in placing that of Borrelli, containing the history of a woman who recovered from seven distinct attacks of small-pox, and died on the eighth; the antecedent eruptions having doubtless been those of some other exanthem or cutaneous efflorescence: but the clear and incontrovertible cases are sufficient to establish an occasional departure from the general law, and teach us to look without a scoff upon the assertion of the oldest Arabian writers, and particularly the declaration

Marvellous case of small-pox recurring to the seventh time;

being a mistake of some other exanthem.

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* Medical Transactions, Vol. I. Art. XVII.

Gen. III. Spec. I. Empyesis Variola. Small-pox.

of Aaron, that the disease occasionally occurred a second, and, in some instances when there was a strong predisposition to it, even a third time.

Other exanthems evince a like anomaly.

A like deviation from the ordinary path of procedure impresses us in the history of other exanthems. The same general law prevails very strikingly in measles and scarlet-fever, but we have also a law of exceptions; and the exceptions in one disease seem to hold a steady proportion to those in another. They are most frequent in scarlet-fever, fewer in measles, and still fewer in small pox. In plague, the general immunity lasts but for a few weeks; yet some who have recovered seem to be protected for a much longer time, and several for life. In influenza, it extends through the whole duration of the existing epidemy, but the susceptibility recovers itself against the next visitation. In some remittents, as yellow-fever, the patient continues little susceptible for many years, perhaps for the whole of his natural existence: in intermittents, the susceptibility, on the contrary, is very generally increased; for the man who has once suffered from an ague catches it again more readily than another.

A high degree of fever not necessary for security in any exanthem.

This principle illustrated.

A high degree of fever is not necessary to emancipate the system in any exanthem; and consequently not in small-pox. It is upon this principle that inoculation takes its stand in vaccinia as well as variola. Febrile commotion, as we have observed already, though necessary to throw the morbid poison to the surface, is only necessary in a small, and sometimes an almost imperceptible degree; and if it be urged beyond this, the morbid poison will be increased in quantity, the ferment will acquire a wider assimilation; and hence the fever and the eruption always maintain a balance. Provided the entire system submits to the influence of the contagion, the emancipation is always as perfect under a small product as under a large; and it is wonderful to observe how completely this influence extends through every part of the system, often indeed without any disturbance whatever, upon a deposit of the minutest

Every part of the system affected, however small the virus applied.

GEN. III. SPEC. I. Empyesis Variola. Small-pox.

particle of variolous contagion under the cuticle; for we are perpetually witnessing cases, or rather *were* when variolous inoculation was more frequent, in which a full change has been operated on the entire frame, though the only pustule has been that excited at the puncture; and the individual, before liable to the disease, is become liable no longer. And that the blood itself, and therefore every particle of the blood, is equally influenced in such circumstances, and even charged with the nature of the virus, is obvious from the frequent communication of the disease from a pregnant woman to the fetus; and this too at times where the mother is no sufferer from the disease herself.

Fetus affected from the mother: sometimes when the mother is unaffected.

Remarkable example from Mead.

A remarkable example of this last fact is given by Dr. Mead in the following words: "A woman who had formerly had the small-pox, and was near her reckoning, nursed her husband who had caught it. At her full time she was delivered of a dead child, whose body was covered over with pustules; a manifest sign that it died of the small-pox before it was brought into the world*." Mauriceau has another case or two to the same effect†: and others have occurred since, and are noticed in several journals of later date.

Mysterious nature of this influence.

In these cases there is no assimilation or multiplication of morbid leaven; an influence is indubitably exercised, and that, too, over the entire current of blood; for it could not otherwise reach the fetus, yet without any sensible effect on the mother. What is the nature of this influence? is it by an infinitesimal division of the minute drop of contagion inserted into the skin, or that received by the breath? Whatever be the way, it enables us to be less surprized at the mode by which family taints, as gout, scrophula, and phthisis, are transmitted from generation to generation.

Fetus not always affected.

Unborn infants do not always receive the small-pox

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* De Variolis, Cap. IV.

† Sur la Grossesse, et d'Accouchement des Femmes. Obs. 600. et 576.

Gen. III. Spec. I. Empyesis Variola. Small-pox. Illustrated from Sir George Baker. Illtiaon.

under the same circumstances, nor in every instance even where the pregnant mother sickens with the disease. Sir George Baker, who was indisposed to credit these singularities, refers to two instances in which the mothers having been inoculated had passed through the eruption favourably, and brought forth infants both of whom three years afterwards were also inoculated with good effect*. From all which we collect, and we can do no more, that a like variation occurs before birth, as we have just observed occurs afterwards; and that different individuals, or even the same individual under particular circumstances, evince a different degree of susceptibility; so that the contagion, though resisted at one time, is readily received at another.

Deep-seated organs admit no eruption on their surface; and drive it towards the skin.

There is another feature in the physiology of small-pox, that is peculiarly worthy of notice; and that is the power which all deep-seated organs possess of opposing a lodgement of the pustulous inflammation on their own surfaces, and driving it altogether externally where it can do least mischief. Dissections have abundantly shown that the viscera and cavities of the interior are never affected with the eruption, except such as, like the skin, are exposed to the approach or ingress of air, as the nose, mouth, trachea and its ramifications, and the entrance of the meatus auditorius. As a general rule, pustules are never found in the rectum, but if there be any prolapse and the sphincter be exposed to the contact of air, that part of the rectum, which concurs in the exposure, will share in the common fate of the external parts.

Proved from numerous dissections.

How far the atmosphere of contagion extends, not fully known: but apparently very limited.

To what extent variolous contagion is capable of radiating, as it issues into the atmosphere from a diseased body, has never been satisfactorily determined. In laying down the general rules of febrile miasm, I ventured to state that contagion or miasm generated in the living body, does not appear to be very volatile in any

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* Med. Trans. Vol. II. Art XIX.

Gen. III. Spec. I. Empyesis Variola. Small-pox.

instance, and soon dissolves in a pure atmosphere. The contagion of small-pox seems fully to be governed by this law. When small-pox was more frequent than at present, medical practitioners, though passing casually from house to house, were rarely, if ever accused, of communicating the disease; and Dr. Haygarth has appealed to an evidence of facts in proof that the sphere of variolous contagion does not include a diameter of fifteen hundred feet, and probably not a hundredth part of such a diameter.

Appearance of the eruption at different periods from the time of infection.

Sometimes six days afterwards: sometimes twenty-one.

Action quickened by inoculation.

As the susceptibility of small-pox varies so considerably in different individuals, it is not to be wondered at that the irritability of the system to its influence should vary also, and consequently that there should be some difference in the period of time between the supposed communication of the disease and its appearance by any manifest tokens. Upon the whole, the interval may be calculated to vary from six to twenty-one days in the natural small-pox; and in the inoculated, which anticipates the action a day or two, from four days to eighteen.

The writers of this disease have subdivided it into an endless multiplicity of forms: but the four following varieties are sufficient to include the whole:

α Discreta.	Distinct small-pox.
ϐ Confluens.	Confluent small-pox.
γ Degener.	Crystallized-pox. Horn-pox.
δ Inserta.	Inoculated small-pox.

α E. Variola discreta. Distinct small-pox. Diagnostics.

The pathognomic characters of the first variety or DISTINCT SMALL-POX are the following: Pustules pea-sized; distinct, distended, circular; the intervening spaces red; the fever ceasing when the eruption is complete.

The disease opens its battery with the usual signs of a febrile cold fit, accompanied with vomiting, and some degree of soreness in the throat. About the fourth, sometimes on the third day, the eruption begins to appear on the face, neck and breast, in minute, flea-bite α E. Variola discreta. Distinct small-pox.

spots, which multiply every night for the ensuing four days, when there is usually a pretty full crop of them over every part of the body, though the face is, in almost all cases, far more covered than any other part; and that according to M. Camper in the proportion of five to one *. The head, face, hands and wherever else the pimples show themselves gradually swell, and the eyelids are are often so much distended as to close the eyes and produce blindness; the spaces between the pimples are reddish, and continue to grow redder as the pimples become pustules and maturate; the fever is of the caumatic or inflammatory kind, and the suppuration is complete on the eighth day or thereabouts. On the eleventh, the inflammation and pustules manifestly abate, and the latter, measuring the diameter of a pea, dry away by degrees and scale off, and wholly disappear on the fourteenth or fifteenth day, with the exception of those on the extremities, which, as they came out later, commonly continue a short time longer.

Symptoms vary according to the degree of fever and extent of eruption.

Such is the ordinary course: but the symptoms vary greatly in severity, according to the degree of fever, and extent of the eruption, which, as already observed, hold a pretty accurate balance. Where the pimples are few and scattered there is but very little indisposition; but where they are very numerous, though still distinct, the soreness, swelling and febrile heat are very distressing: and under this form the progress of the disease has often been divided into four stages, an incursive, an eruptive, a maturating, and a declining or scabbing, at each of which it discovers an exacerbation of pyrectic symptoms. And when the patient is an infant, it is at these times, and especially on the incursion of the disease, occasionally attacked with a convulsion fit, or perhaps several in succession, which it was once the custom to make much lighter of than the occasion justifies.

Convulsion fits frequent in infants on the incursion of the disease.

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* Les Avantages del' Inoculation, &c. Paris, 1782.

Gen. III. Spec. I. α E. Variola discreta. Distinct small-pox. General treatment. Leading principle.

The grand principle in the treatment of small-pox, as of all the other exanthems that have past before us, is to moderate, and keep under the fever; and, however the plans that have been most celebrated for their success may have varied in particular points, they have uniformly made this principle their pole-star; and have consisted in different modifications of fresh air, cold water, acid liquors and purgative medicines: heat, cordials, and other stimulants having been abundantly proved to be the most effectual means of exasperating the disease, and endangering life.

Mead showed no preference to one purgative above another.

Dr. Mead seems to have been almost indifferent as to the kind of purgative employed, and certainly gave no preference to mercurial preparations. His idea was that all were equally beneficial that would tend to lower the system: "Indicium," says he, "certe satis manifestum, quamcunque materiæ diminutionem, fomitem igni subtrahendo, huic morbo apprimè convenire." And in this manner he accounts for the mildness of the disease after any great evacuation, natural or artificial; after acute diseases, immoderate catamenia, child-birth, and salivation.

Mercury seems to possess a specific influence.

Mercury, however, appears to have a specific influence upon the action of variolous matter; perhaps, as in the case of syphilis, upon the quality of the matter itself: for though, when considerably diluted with water, it is still capable of propagating the disease by inoculation, yet Von Wënsel has shown satisfactorily that when triturated with calomel it loses its energy, and in inoculation becomes inert and useless. Mercury has hence been denominated in Germany remedium pancreston, and has certainly supported its character as the best corrector of the small-pox we are acquainted with from a period antecedent to the introduction of inoculation into Europe, to the present day. "Physicians who attend hospitals," says Sir George Baker, "have frequently observed the small-pox to be particularly mild in those patients who have happened to receive the infection soon after a mercurial phyalism; and inoculation is said to have been a

Proofs of this.

much more successful practice in some of our American colonies since the use of calomel has been there introduced into the preparative regimen." When given merely as a purgative it is usually mixed with the powder or resin of jalap, and in this manner acts much more briskly.

Gen. III.
Spec. I.
α E. Variola discreta.
Distinct Small-pox.

Exposure to fresh and cold air.

Exposure to fresh and cold air is nearly, if not altogether, of as much service as calomel; and hence the patient, however inactive and dejected he may be, should be roused from his bed, and urged to use gentle exercise either abroad or in a cool capacious room. Cold water is usually prescribed in large draughts for the same purpose, and very generally proves highly refreshing. The acids, and especially the diluted mineral acids, have a peculiar influence in diminishing the extent of the eruption; insomuch that some inoculaters have been bold enough to prophecy the number of pustules a patient would produce under a given quantity of the acid. Whether any one of the acids has an intrinsic power beyond the rest has never been sufficiently put to the test of inquiry; nor is it clearly ascertained in what way they operate towards the present effect. They are an excellent refrigerant in fevers of all kinds, but in small-pox there seems to be a something beyond this power, and they probably restrain the process of assimilation.

Cold water.

Mineral acids.

Lemonade may conveniently form the common drink during the fever; or a solution of cream of tartar in water, which, as tending to keep the bowels gently open, will be preferable. When the fever is considerable, the purgative should be repeated at each of its exacerbating stages; and if convulsion-fits arise, the spasmodic irritation is best removed by laudanum.

β E. Variola confluens.
Confluent small-pox.

The pathognomic characters of the CONFLUENT VARIETY are the following:—Pustules confluent, flaccid, irregularly circumscribed: the intervening spaces pale: with great debility.

Diagnostics.

In this variety the eruption assumes, at first, the appearance of a general efflorescence without any distinctive points; innumerable pimples, however, show themselves about the third day, being a day or two sooner

Gen. III. Spec. I. β E. Variola confluens. Confluent small-pox.

than in the discrete variety. They soon coalesce from their thronging number, and become filled, not with pus, but a yellowish serum, for this variety seldom suppurates regularly. The fever is violent and exhibits a synochous or typhous type; and, instead of subsiding on the appearance of the eruption, as in the distinct variety, very generally increases. The head is oppressed, the eyes inflamed, the brain comatose or delirious. After the eighth day the detached pellicle, covering a large secretion of this virulent fluid becomes brown, and not yellow as in the distinct sort. Peculiar to the confluent small-pox is salivation in adults, and a looseness in children; the former always attends; the latter more rarely. The spitting begins as soon as the eruption appears or within a day or two afterwards: the saliva is at first thin, and easily and plentifully discharged; but, towards the eleventh day, which is the period of the greatest danger, it becomes viscid and is discharged with great difficulty; the looseness in children, however, continues beyond this period.

Prognosis.

When the disease terminates favourably, the swelling of the face about this time begins to abate, and that of the extremities commences. But, if the constitution be incapable of counteracting the weakness under which it is suffering, or the mass of disease with which it is oppressed, and particularly the exacerbating or secondary fever, as it is called, which takes place at the stage of maturation, the cuticle suddenly becomes flattened, the features sink, the pustules are depressed; the coma increases, flea-bite spots are sprinkled over the body, succeeded often by hemorrhages from dissolved blood; the pulse flutters and the patient expires; usually, as already observed, about the eleventh, but sometimes not till the sixteenth day.

Remedial treatment.

Bleeding a doubtful remedy.

In the commencement of this variety, the same reducent plan is to be pursued, as already recommended in the preceding variety; and the effusion of cold water may be added to a free use of fresh and even cold air. Bleeding is a doubtful remedy, and

Gen. III. Spec. I. β E. Variola confluens. Confluent small-pox.

its propriety must entirely depend upon the constitution or habit of the individual, and the nature of the prevailing epidemy. In a state of high entonic health, and firm elastic fibre, it may be allowed, and perhaps repeatedly: but we should always bear in mind, first, that the plenitude of the disease does not so much depend upon the strength or weakness of the frame, as upon its susceptibility of the contagion, and irritability beneath its action: and next, that in confluent small-pox the process of maturation does not take place kindly or perfectly, and that the fever, often a synochus, has always a tendency to run into a typhus, particularly when the temperament of the atmosphere predisposes to this type. On this account, it will often be found necessary, and particularly towards the stage of maturation, to support the tone of the system instead of reducing it. Camphor offers us one of the medicines for this purpose; and may be given in solution or in the form of pills. The latter is generally the most convenient, as it can thus be taken in a larger quantity, and needs not interfere with volatile neutrals, etherial compounds, the acidulated decoction of cinchona, or the same tonic in a more powerful form. If, indeed, on the accession of the secondary fever, the pulse should suddenly sink, the pustules flatten, and the surface turn pallid or purple, wine must be added to the other remedies, blisters or sinapisms applied to the feet or legs; and opium be administered if a diarrhœa should supervene: though in the earlier stages of the disease this last symptom should be very cautiously interfered with. Some part of the secondary fever may probably be set down to the score of the absorbed virus, now thrown back upon the blood from every part of the surface; and to disarm this source of exacerbation, it may be convenient to open the pustules as they ripen, and let them discharge their contents externally. And to save the face as much as possible from those exulcerations of the true skin that terminate in pits and scars, a mask of fine linen or cambric should be worn over it,

Tone of the system to be supported.

Camphor.

Diffusible stimulants.

Cinchona.

Wine sometimes necessary in the secondary fever: and opium: where a diarrhœa, however, it demands great caution in checking.

Pustules to be opened as they ripen.

Gen. III. Spec. I. β E. Variola confluens. Confluent small-pox.

illined with cetaceous cerate to soften the integument and defend it from the air.

Often lays a foundation for subsequent evils.

Small-pox, then, may well be contemplated as a fearful disease. It is so at all times from the uncertainty of its prognosis; but especially when it assumes a severe character. And it is so, moreover, not merely on account of its own ravage, but of the tendency it produces to subsequent evils, after its own course has subsided. In many cases the constitution is incapable of recovering from the general disturbance and debility it has introduced, and hence atrophy, dropsy and hectic are by no means uncommon results. But it more frequently proves mischievous by stirring up some hereditary taint that might otherwise lie quiet through life; and in this way becomes an exciting cause of scrophula, consumption, and gout.

γ E. Variola degener. Horn-pox. Crystalline pox.

Peculiar marks.

The HORN or CRYSTALLINE-POCK, it is only necessary to notice, as forming a somewhat singular departure from the usual course of the disease, though not often accompanied with danger, or distinguished by an overloading eruption. Its the pathognomic characters are set down in the Nosological Synopsis as follows: Pimples imperfectly suppurating; ichorous or horny; and semi-transparent.

Explained.

From some unknown cause, the variolous fluid is, in this variety, secreted and thrown upon the surface in the form of lymph, and is never exchanged for that of pus. As the finer part of the fluid is absorbed it loses its pellucidity, and the vesicular pimples appear whitish, and preserve this hue till they dry and peel off. This is particularly the case in persons of a fair and delicate skin, but, where the skin is darker or coarser, they become brown, hard and horny: and hence it is always in this way that the present variety terminates amongst negroes. Whenever small-pox occurs a second time, it usually shows a tendency to this modification.

δ E. Variola inserta. Inoculated small-pox.

The fourth variety under which small-pox is to be found is the artifical modification known by the name of INOCULATION: a most important advantage to mankind

GEN. III. SPEC. I. β E. Variola inserta. Inoculated small-pox.

before they were acquainted with the equal or nearly equal protection afforded by the virus of cow-pox

Peculiar characters.

Its peculiar characters are thus described in the volume of Nosology: Orange-coloured aveola about the puncture; pain in the axilla about the seventh day: disease mostly mild; and the purulent discharge sometimes confined to the punctured parts.

History. Derived probably from China.

Simple mode of communication.

Practised at an early age in our own country: in Wales, and remote provinces: also in the Highlands of Scotland.

This mode of communicating the disease, like the natural disease itself, appears to have reached Europe from the east, and especially from China, where, according to the statements of the Jesuits *, it has been practised immemorially by perhaps the simplest and best mean of communication that has hitherto been devised, that of a needle charged with the contagious matter of a pustule, and introduced transversely under the cuticle. From China the discovery appears to have travelled into India, and thence to Asia Minor. Its first employment in our own country seems to have been the result of some fortunate observation, made, like that of cow-pox inoculation, in the rudest parts of it; for the practice of "buying" the small-pox, which was in fact a communication of the disease by insertion, was prevalent in Wales at a very early period, and appears to have been also occasionally resorted to in the Highlands of Scotland, from an antiquity nearly as remote; of which abundant proofs are to be found in various articles in the Philosophical Transactions †. All such practice, however, and even the knowledge of it, seems to have been confined to the remote quarters in which it accidentally arose, as late as the year 1721, when Lady Mary Montague who had witnessed its success in Turkey, and had had a son successfully inoculated there, submitted an infant daughter to the same process at this time in London. Yet so little acquainted with its success were the public, and even the medical profession, at this

Introduction to general notice by Lady M. Montague.

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* Lettres Edifiantes et Curieuses, &c. passim.

† See Vol. xxxii, years 1722-3, and especially Dr. Williams's account.

GEN. III. SPEC. I. β E. Variola inserta. Inoculated small-pox. Tried first on condemned criminals: who recovered.

period, and so cautious in giving it credit, that an experiment of its effect was ordered to be made in the same year on six condemned criminals, all of whom were fortunate enough to recover, and who thus redeemed their lives. This gave countenance to further attempts; yet the innovation, like that of inoculation from cow-pox, was sharply and pertinaciously opposed, and not more than seven hundred and sixty-four persons, according to Dr. Jurin's calculation, were inoculated all over England from 1722 to 1727.

But the use of inoculation violently opposed.

Unfortunately the practice of treating the disease with cordials and a hot regimen at this time prevailed, and was too generally applied to the inoculated as well as to the natural process, by means of which the former was often rendered a severe and in many cases a fatal disease; though it was impossible for the dullest intellect to be altogether insensible to its high comparative advantages. By degrees, however, the refrigerant and reducing plan obtained a triumph, and the triumph of inoculation was a synchronous step. Yet half a century afterwards the exploded plan was still persevered in by some practitioners, and it is instructive to mark the comparative mischief that still accompanied it. "I found," says Sir George Baker, writing in 1771, "that in the counties of Essex, Norfolk, and Suffolk many thousands of people, of all ages and constitutions, and some of them, of every apparent disadvantage, had been inoculated with general good success; whereas at Blandford, in Dorsetshire, out of three hundred and eighty-four persons, who were inoculated, thirteen actually died, and many others narrowly escaped with their lives from the confluent small-pox*." This gives us a direct mortality of something more than one in thirty; and it is almost needless to add, that in the successful districts here alluded to, the cooling plan was prevalent, and at Blandford that of hot beds and a warm regimen.

Injured also by the mischievous treatment adopted: which gradually gave way to a more rational plan.

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* Med. Trans. Vol. II. Art. XIX. Compare M. Gatti's Nouvelles Reflexions sur la Practique de l'Inoculation. Paris 1770.

Gen. III. Spec. I. β E. Variola inserta. Inoculated small-pox. Wonderful improvement upon the natural disease.

Even this result, however, with all its fatality offers a wonderful improvement upon the march of natural small-pox; in which one out of every three or four have been computed to die among adults, and one out of every seven among infants; while, wherever the cooling and reducent plan has co-operated with inoculation, the casualties are not more than one in five or six hundred.

Yet injurious from the wider diffusion of variolous contagion:

Yet great as is the intrinsic advantage of inoculation even upon its lowest scale, there is one evil which has always accompanied it, and which, in a nation so justly proud of its civil liberties as Great Britain, it is almost impossible to provide against; and that is the wider diffusion of variolous contagion through the atmosphere by the indiscriminate use of inoculation in all places. And hence it has been very forcibly observed in our own day by those who have written most warmly in favour of vaccination, that small-pox inoculation is upon this ground a greater public evil than good; since the multitude who will not consent to be inoculated, receiving the natural disease more generally than they otherwise would do, the total mortality is greater than before inoculation was had recourse to. I was at first induced to think that this statement was a little too highly coloured for a particular and present purpose. But on turning to Baron Dimsdale's tables of calculation drawn up nearly fifty years ago, I find him arriving at the very same conclusion; and we may fairly affirm, that the deaths from small pox, since the introduction of inoculation, have increased in consequence of the more extensive diffusion of variolous contagion in the proportion of fourteen or fifteen upon every hundred. The bills of mortality indeed give us something more than this.

and hence producing a greater average of mortality than the natural disease itself.

Whence the greater mildness of of inoculated than natural small-pox.

By what means variolous contagion received by a puncture becomes so much milder than when received from the atmosphere is a problem that has never been satisfactorily solved. Something is unquestionably due to the preparatory progress of purgatives and a reducent regimen; but, as the same mildness of character does

Gen. III. Spec. I. β E. Variola inserta. Inoculated small-pox.

The inoculated form without secondary fever even when confluent.

not obtain in the natural disease, where the same preparation has been submitted to antecedently, some other power must be sought for. Under inoculation, and with the usual precautions, the eruption is commonly distinct and widely scattered; yet the most striking character in the inoculated form is that when the eruption is full, and even confluent, the secondary fever, so alarming in the natural disease, is here for the most part slight, and sometimes altogether absent. This exacerbation is usually ascribed to an absorption of the contagion from the pustules; but the feature before us shows that there must be a something distinct from absorption, though perhaps acting in union with it. Is the virus from the first less irritant, and less capable of exciting much secondary fever, for the very reason that it was less capable of exciting much primary?

Inoculation hence safe in infancy and old age.

Should not be performed on pregnant women, nor infants while teething.

It is on this account that variolous inoculation may be submitted to, without danger, by feeble infancy, advanced age, and even cachectic habits in every stage of life; and that the season of the year does not seem to be a matter of great importance. Pregnant women, however, ought never to be exposed to it, nor infants, where there is a choice, till after the irritation of teething.

Mode of operation: fluid should be taken before suppuration. Progress of the inoculated disease.

The operation is perfectly simple; the needle originally employed in the East is as good an instrument as any, though the lancet is preferred in general. It is only necessary to deposit a minute drop of the contagion under the cuticle, or at least to make such a wound as may give forth a single drop of blood. It is preferable to take the fluid before the pustule suppurates; as afterwards it seems to partake of the nature of common pus as well, and produces a larger circle of inflammation, and on this account also it cannot so fully be relied on. The puncture does not so completely disappear as in that with vaccine fluid, but it is often scarcely visible for three or four days. At this period, a minute papula may be traced, a litle itching is felt, and sometimes there is a slight inflammation. On the sixth day, a pain and weight are felt in the axilla, proving that

GEN. III. SPEC. I. β E. Variola inserta. Inoculated small-pox.

the lymphatics of the arm have become affected, and that the virus is conveyed into the system. On the seventh or eighth day, the precursive symptoms of transient shiverings, head-ache, and pain in the back are perceived, and immediately followed by the eruption itself; though in this mild form of the disease the only eruption, as in the inoculated vaccinia, is the pustule on the puncture or a few which directly surround it. Where the disease spends itself in this manner the local efflorescence commonly spreads over a larger area than otherwise, and the adjoining lymphatics participating in the irritation, the tenderness and sense of weight are increased in the axilla. Where the symptoms are unfavourable, there is a purplish, instead of a rosy inflammation, or a narrow, deep red, circle surrounding the puncture, with a dip or depression in the pustule.

Unfavourable prognostic.

Treatment.

The treatment is to be the same as that already pointed out for the natural disease: but it should vary with the habit, constitution, or age of the individual. Sufficient attention was not always given to this remark formerly: for the preparatory regimen was a bed of Procrustis to which every one was alike compelled to adapt himself. Sir George Baker openly complained of this inconsistency in his own day*; but it was very generally continued notwithstanding his censure.

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* Med. Trans. Vol. II. p. 282.

GENUS IV.

ANTHRACIA.

Carbuncular Exanthem.

ERUPTION OF TUMOURS IMPERFECTLY SUPPURATING WITH INDURATED EDGES, AND, FOR THE MOST PART, A SORDID AND SANIOUS CORE.

THE present genus, denominated ANTHRACIA, from ἄνθραξ, "a burning coal," by its definition embraces two diseases of very different specific characters, though closely according in their generic marks. These are,

1.	ANTHRACIA PESTIS,	PLAGUE.
2.	——— RUBULA,	YAWS.

Proper station of these species disputed.

There have been, however, and still continue to be, great disputes among the nosologists, as to the proper station of both these species; many contending that plague ought not to be regarded as an exanthem, and most writers having hitherto contemplated yaws as an impetigo, or some other dysthetic affection. Dr. Cullen has expressed a doubt whether the first should not be removed from the order of exanthems into that of fevers; Vogel has actually introduced it into this last order; Willan has rejected it from the exanthems. Parr arranges it as an exanthem, in his article *Nosology*, having previously, like Willan, rejected it from that division in his article *Cutanei Morbi*. In his remarks subjoined to the article *Nosology*, he again acknowledges that "on reflexion it appears improper" to introduce it into the list of exanthems; and in his article *Pestis*, Gen. IV. Anthracia. Carbuncular exanthem.

he asserts more roundly that "there is no foundation for arranging plague amongst the exanthemata; and that it should be reduced to the asthenic remittents." Sauvages, Linnéus, Sagar, and Macbride have entered it in the order in which we have placed it in the present system.

Reasons for assigning to plague its present state.

In few words, there appears strong and almost incontrovertible reason for thus placing it. The fever, as will presently be shown, is eruptive, and as specifically so as that of any of the exanthems; it is contagious like most of them; and, although frequently occurring oftener than once in a man's life, we have the concurrent testimony of all the writers, who have been eye-witnesses of its effects, that it renders every one less susceptible for a certain period after wards, and some for the whole term of their existence.

Reasons for assigning to yaws its present place.

With respect to yaws, the diversity of opinion has been quite as considerable as that respecting plague. Generally speaking, it has been placed in the loose and indeterminate class which has been distinguished by the name of cachexies; Sauvages and Sagar arrange it in the order tubera of this class; Cullen in that of impetigines. These writers take little or no notice of any kind of febrile features that accompany it whether specific or sympathetic. Dr. Young pays as little attention to the febrile symptoms by which it is said to be distinguished, and at the same time transfers it from the division of cachexies (*cacochymiæ* as he denominates them) to the order of paramorphiæ or structural diseases. Dr. Winterbottom, and Dr. Dancer, on the contrary, contend that a slight fever is its primary symptom; and Dr. Ludford, to whom we are indebted for, perhaps, the best history which has yet been given of this disease, describes it as a proper eruptive fever, totally unconnected with diet, lues, or any other taint in the blood; commencing with alternations of shivering and heat, lassitude, want of appetite, and pains in the head and loins to so great a degree as to prevent sleep; the fever and every inconvenience diminishing after the eruption, and the appetite returning. So that, like small-pox, it appears to

Gen. IV. Anthracia. Carbuncular exanthem.

have a regular accession, height and decline; and, as already observed, may be propagated by inoculation; and is never known to occur a second time. Hence Parr, who seems to have long wavered in his opinion concerning the real nature of this disease, regarding it at one time as a *pustulous exanthem*, and afterwards as a mere *cuticular intumescence*, returned, at last, with a decided mind to his first opinion, and again asserts that "the detail of symptoms shows that the disease is truly exanthematous."

Hence both diseases carbuncular exanthems:

This view of the subject will therefore abundantly justify the present arrangement of both these diseases; support their pretensions to the character of carbuncular exanthems; and consequently develope the nature of the connection of yaws with plague, under a nosological method founded on the principle of symptoms. In their individual or specific characters they are indeed highly discrepant, but this is not sufficient to call for a separation, while they agree in the common outline that may form the basis of a generic division. The tall and stately acacia of Egypt and the delicate sensitive plant of our own green-houses belong to the same genus in botany, however inaccordant they may appear to the eye of an ordinary spectator.

and though widely different upon many points, coincide in a common generic outline.

SPECIES I.

ANTHRACIA PESTIS.

Plague.

TUMOURS BUBONOUS, CARBUNCULAR OR BOTH; APPEARING AT AN UNCERTAIN TIME OF THE DISEASE: FEVER A MALIGNANT TYPHUS, WITH EXTREME INTERNAL HEAT AND DEBILITY: CONTAGIOUS.

Gen. IV. Spec. I. No longer known in our own country; nor existent since 1679.

In Edinburgh, not since 1645.

It is happy for us, that, in describing this dreadful scourge, we are under the necessity of referring to foreign countries, or to remote periods in the history of our own, before the great advantage of public cleanliness and ventilation in our streets was sufficiently attended to or even known. The earliest visitation of the plague that occurs in English history was in the year 430; the last time it appeared as an epidemic was in 1665, and the last notice of it in the bills of mortality was in 1679. In Edinburgh it has not prevailed since 1645.

From the diversified and clashing accounts that are given of this disease by different writers and eye-witnesses in different ages, or different parts of the world, we are justified in laying down the three following varieties; which, while they offer the chief points of discrepancy, will be found in their explanation to reconcile the seeming discordancies of established authorities.

α Fructifera. Common plague.	The disease extending to about the fourteenth day; and relieved by the appearance of the eruption.

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β Infructifera. Uneruptive plague.	The eruption imperfect or suppressed; transferred to some internal organ; or superseded externally by stigmata and vibices.
γ Erythematica. Erythematous plague.	The body covered over with trails of vesicular erythema, producing deep, sanious, and gangrenous ulcerations as it spreads, often to the loss of one or more limbs.

The whole of these varieties sometimes co-existing. All of them in the Aleppo plague 1660-1-2.

The whole of these varieties have sometimes been exhibited in the same epidemic; the last, however, is the least frequent, whether alone or in conjunction with the rest. All of them appear to have been present and intermixed in the Aleppo plague of 1660-1-2, so clearly and strikingly described by Dr. Patrick Russell, physician at the time to the British Factory established at that city: for he speaks of the pestilential eruptions appearing under the form of buboes, carbuncles, or OTHER exanthemata: among which last he takes particular notice of an erysipelatous redness forming streaks of a reddish purple or livid colour, intermixed with vibices and wheals, or large blue and purple spots, the maculæ magnæ of authors; while, in some cases, he observes that an extraordinary concurrence of these eruptions took place, which, however, was chiefly remarked among children under ten ears of age.

The first and second varieties in the Barbary plague of 1779, 1800.

In the Barbary plague of 1799 and 1800, so fully and excellently described by Mr. Jackson *, who was an eye-witness to its effects,—the first and second of the two varieties here offered, the fructiferous and infructiferous, were intermixed, while the erythematic seems to have been absent. It was probably absent also in the plague of Moscow of the year 1771, as it is not noticed by Dr.

Probably also in the plague of Moscow of 1771.

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* Account of the Empire of Morocco, &c. 4to, 1809.

Mertens, who gives a full description of both the other modifications. In the London plague of 1665, all of them seem to have occurred occasionally; the first and the second, however, most frequently, examples of which are to be found in Hodges, Sydenham, Sir Gideon Harvey *, and indeed all the writers; while, in allusion to the last, Sydenham compares the inflammation of the plague, as it often appeared, to that of an ignis sacer, by which he means an erysipelas; in which, nature, he tells us, expels the matter of the disease from the blood to slightly elevated tumours dispersed over the surface in broad red patches: only that this *ignis*, says he, is more violent than the ignis sacer †;—" *ignis noster isto sacro longè divinior est.*"

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All occasionally occurred in the London plague of 1665: but mostly the first and second.

In the plague of Athens, on the contrary, as described by Thucydides and Lucretius, we are not sure of the existence of buboes, as not being distinctly noticed, though probably included in the inflammations that are stated to have fallen upon the privities (τὰ αἰδοῖα), while the last two varieties were perpetually intermixed; the chief eruption, however, being that of the vesicular erythema, the sacer ignis, or holy fire, as observed by Sydenham. In consequence of which Thucydides tells us, that " the surface of the body was neither violently hot, nor wan; but reddish, livid, and covered over with an efflorescence of minute vesicles and ulcers,"—φλυϰταίναις μιϰϱαῖς ϰαὶ ἕλϰεσιν:—but that the interior parts were so burning that the sick could not endure the lightest covering or clothes, and eagerly threw themselves into cold water. And he adds, that the disease, in its ulcerative progress, commencing in the head or the upper parts of the body, migrated over the entire frame, and often fixed itself permanently on the sexual organs, the hands, or the feet ‡. The whole of which course is by Lucretius described under the express name of *sacer ignis*, or *holy fire.*

In the plague of Athens the third variety chiefly found.

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[*] City Remembrancer, passim.

[†] Febris Pestilens, et Pestis Opp. Sec. II. Class II.

[‡] Hist. Lib. II. 50.

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Et simul, ulceribus quasi inustis, omne rubore
Corpus, ut est, per membra SACER quom diditur IGNIS *.

Synonymous with Sauvages' erysipelas pestilens:

The entire passage precisely corresponds with the character of the erysipelas *pestilens* of Lorrain, delineated under this name by Sauvages, who has copied freely both from Sydenham and Hoffman; but which, though he calls it an erysipelas, had, as he admits, the closest affinity with plague in its most malignant form, "cum atrocissimo morbo pestilenti summam affinitatem habet;" and which was in reality this disease in the form before us. "Each," says he, "commences with horror, burning heat, delirium, prostration of strength, vehement pain of the back and head; in each the burning matter of the disease breaks forth on the fourth day on the axillary or inguinal glands, and spreads to the feet in the form of the ignis sacer: in the glands it produces abscesses; in the extremities, gangrene." It is the mal des ardens of the French writers; and, in its malignant variety, the erysipelas *gangrænosum* of Willan. Much of this difference, however, seems to be dependent upon local or accidental circumstances, and especially upon the state or constitution of the atmosphere. Thus we are told by Sir James M'Grigor, that when the disease first broke out in the Indian army in the course of its laborious expedition to Egypt, the cases sent from the crowded hospitals of the 61st and 88th regiments were, from the commencement, attended with typhous symptoms: while those from the Bengal volunteer battalion and the other corps encamped near the marshes of El-Hamed, evinced uniformly an intermittent or remittent type; and those that occurred in the cold and rainy months of December and January, an inflammatory character; after which, as the weather became warmer, the disease at Cairo, Ghiza, Boulac, and the isthmus of Suez, wore the form of a mild continued fever †.

and the mal des ardens of the French writers.

Discrepancies in the varieties accounted for.

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* De Rer. Nat. vi. 1164.

† Medical Sketches of the Expedition, &c.

GEN. IV.
SPEC. I.
Anthracia.
Pestis.
Plague.

Plague of London distinguished by a peculiar constitution of the atmosphere.

The plague of London in 1665 was, in like manner, distinguished by a peculiar constitution of the atmosphere, which excited an epidemic synochus of great violence and danger, often accompanied with symptoms of rheumatism or pleurisy, and which seems to have added considerably to the progress and mortality of the plague. Sydenham expressly calls it a pestilential fever, *febris pestilentialis;* and adds, that the fever of the plague, after it had broken out, so completely assimilated itself to its character, that in the second or infructiferous variety it was extremely difficult to distinguish between the one and the other *.

In like manner Thucydides expressly tells us that whatever incidental complaint any person was labouring under during the plague at Athens, it was sure to run into this disease, which swallowed up every other. Yet, he adds that at the commencement of the plague complaints of all kinds were peculiarly uncommon; insomuch that by the acknowledgment of every one the year seemed to have enjoyed a general immunity †.

Its course, heighth and decline.

The plague at London first attracted attention about Midsummer, and augmented in its destructive ravage till the autumnal equinox, at which time about eight thousand died within the bills of mortality in the space of a week, though two thirds of the inhabitants at least had fled into the country to avoid infection. From this time it suddenly put on a milder character and made fewer attacks, nearly ceased with the cold of the winter, and totally vanished in the spring: the epidemic fever, nevertheless, remained for a twelvemonth longer, though this, also, was both less common and less virulent.

Like controlling agents to be found in all quarters.

The same controlling circumstances take place all over the world; and in studying the history and progress of the disease we must allow for the changes they effect. Dr. Mertens has well described this progress in the plague of Moscow of 1771, at which time he pre-

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* Sect. II. Cap. I.

† Hist. Lib. II. 49.

GEN. IV. SPEC. I. Anthracia Pestis. Plague.

Symptoms as they occurred in the plague of Moscow.

sided over one of the largest hospitals of the imperial capital, and was an eye witness to its ravages*. Having noticed its liability to modifications from the above causes, he tells us, that in general it begins with headache, giddiness, horripilation, prostration of strength, fever, nausea, vomiting, redness of the eyes, a dejected countenance, and a white foul tongue. A tickling attended with slight pains is perceived in the parts where the buboes and carbuncles afterwards break out. "The former," says he, "are glandular swellings, not acutely painful, and more or less elevated; usually seated in the groins or arm-pits, but occasionally occurring in the neck, cheeks, and other organs of the body." The latter he describes very nearly in the words already employed in the specific definition of the carbuncle or anthrax in the preceding pages of this work, though he observes, that "in the plague this tumour evinces somewhat less prominence, pain, and inflammation, than when it arises as an idiopathic affection."

Prognostics.

"Many," he tells us, "died on the first or second day of the attack, before either of these kinds of tumours made their appearance." In such cases, an eruption of petecchiæ, maculæ or vibices, like what occur in putrid fevers, usually took place a few hours before death; but sometimes the disease was so sudden as to outstrip the march of these active precursors of dissolution. Almost all who died were cut off on or before the sixth day: insomuch that those who reached the seventh were pronounced to be out of danger.

Origin and mortality.

The disease was introduced into Moscow by a communication with the Turkish army: it made little progress during the earlier part of the year, but became fearfully fatal with the advance of summer, and gradually died away with the frost. The mortality was tremendous. Seventy thousand inhabitants were cut off in a few months, twenty-two thousand in a single month, and sometimes twelve thousand in twenty-four hours. Notwithstanding which, by cautiously blocking up every avenue, except one, to the large hospital over which he was appointed physician, and keeping a strict and constant guard at the entrance thus left open, although the building was in the midst of the city, it was maintained perfectly free from infection, while the disease raged around it in every quarter.

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* Observationes Medicæ de Febribus putridis, de Peste, nonnullisque aliis morbis. Vindebon. 1778.

Advantage of a strict separation from the infected.

Mr. Jackson's account of the plague at Morocco is in perfect consonance with this description, though it contains a feature or two in addition, which probably became more prominent from the higher temperature of the atmosphere. "The symptoms of this plague," says he, "varied in different patients; the variety of age and constitution gave it a like variety of appearance and character. In some it manifested itself by a sudden and violent shivering, in others by a sudden delirium, succeeded by great and unquenchable thirst. Cold water was eagerly resorted to by the unwary and imprudent, and proved fatal to those who indulged in its momentary relief. Some had one, two, or more buboes, which formed and became often as large as a walnut, in the course of a day; others had a similar number of carbuncles; others had both buboes and carbuncles, which generally appeared in the groin, under the arm, or near the breast. Those who were affected with a shivering, having no bubo, carbuncle, spots (vibices or maculæ latæ), or any other disfiguration (eruption), were invariably carried off in less than twenty-four hours; and the body of the deceased became quickly putrefied, so that it was indispensably necessary to bury it in a few hours after dissolution.

Plague at Morocco accordant with the above description.

Rapid putrefaction.

"The European merchants shut themselves up in their respective houses, as is the practice in the Levant. I did not take this precaution, but occasionally rode out to take exercise on horseback. My daily observations convinced me that the epidemy was not caught by approach, unless that approach was accompanied by an

Miasm spreading to only a small distance from the diseased.

Gen. IV. Spec. I. Anthracia Pestis. Plague. Remarks coincident with general observation.

inhaling of the breath, or by touching the infected person."

This last remark is in strict agreement with the observations of the best medical writers of modern times who have witnessed the disease in different countries and climates: and the wholesome practice of drawing a line of demarcation, and thus cutting off all communication with the sick, is founded upon the same view. M. Assalini traces the progress of the plague among the French army in Egypt with great care, and asserts that even those who associated with the sick were seldom infected unless inmated in their rooms: and instances the small degree of danger there is from casual intercourse, by showing how very rarely the medical attendants suffered.

Fresh persons less safe than those accustomed to the miasm.

Yet fresh persons are far less safe than the stated inhabitants of an infected place, who have been gradually inured to the influence of the morbid miasm. Families, says Mr. Jackson, who had retired to the country to avoid the infection, on returning to town, when all infection had apparently ceased, were generally attacked and died. After the mortality had subsided at Mogadore, a corps of troops arrived at the city of Terodant in the province of Suse, where the plague had been raging, and had subsided: these troops after remaining three days at Mogadore, were attacked with the disease, and it raged *exclusively* among them for about a month, though they were not confined to any particular quarter, many of them having had apartments in the houses of the inhabitants of the town.

Tremendous mortality.

As in the plague of Athens and of London, continues the same author, "the mortality was so great that the living not having time to bury the dead, the bodies were deposited or thrown together into large holes, which, when nearly full, were covered over with earth. Young, healthy, and robust persons with strong stamina, were, for the most part, attacked first, then women and children; and, lastly, thin, sickly, emaciated, and old people." The depressing passions of fear and grief had also a strong predisposing effect: a few suffered twice. Morocco lost a thousand upon an average daily, where the infection was at its height, being about the maximum that fell at London; Old and New Fez, from twelve to fifteen hundred: Terodant, about eight hundred. The total loss sustained in these three cities, and in Mogadore, was estimated at one hundred and twenty-four thousand five hundred souls.

Order of eruption, buboes, carbuncles, holy fire and petecchiæ.

In the regular progress of the disease, buboes make their appearance first, and about the second or third day from the attack; then carbuncles and ignis sacer, if either of these occur at all; and, lastly, as the danger increases, petecchiæ and vibices. But, as already observed, where the plague shows great malignity from the first, it opens with petecchiæ and vibices, and sometimes kills in a few hours even before these have time to appear.

Buboes a critical and favourable mark: but to this end should be perfectly suppurated: and then afford the surest indemnity against a future attack.

Buboes, in the opinion of all the practical writers, or nearly without an exception, are a critical mark of the disease, and the natural means of conducting it to a favourable termination: but in order, says Mertens, to their proving beneficial, they must undergo perfect suppuration. In many instances they neither inflame nor become painful; and in others they suddenly disappear after having reached the size of walnuts. In the former case they afford no relief, in the latter death is almost sure to follow speedily. The earlier they make their appearance the better; and upon a free suppuration they certainly render the patient less susceptible of the disease afterwards. In the opinion of M. Sotira, indeed, and of most of the French medical staff appointed to the Egyptian expedition, they prove an indemnity for life: yet the examples of a second attack are too numerous to allow us to adopt this opinion as a general rule.

Disease sometimes returns:

Mr. George Smith, surgeon of the Russian Imperial Land Cadet corps of nobles, was twice a sufferer from the plague at Bucharest in the year 1772, as I think, and had the rare privilege to recover from both assaults. But that an exemption for a considerable term of time

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is hereby very generally obtained, is established by innumerable examples, of which it may be sufficient to quote that of M. Mathias Degio, one of the surgeons attached to the same establishment. "Perceiving," says Dr. Guthrie, "the gentlemen of his profession condemned, in a manner, to death if punctual in their duty, he had the resolution to inoculate himself for the plague in a full confidence of its efficacy; and ever afterwards found himself invulnerable, while his companions around him were falling victims to its fury *."

but the exemption sometimes perfect.

Inoculation sufficiently efficacious; but cannot be relied on for a salutary result.

Of the efficacy of inoculation from the virus of a buboe there can be no question; and we have hence a sufficient proof of the specific character of the eruption; but it is not always a successful efficacy; and, even where it is so, as the extent of the immunity is not sufficiently ascertained, inoculation for the plague is by no means to be recommended. We are told by Mr. (now Sir John) Webb of a bold experimenter in the person of a young physician and hospital surgeon attached to the British army at Rosetta in 1802, who, to determine the question whether the bubonous virus of the plague be or be not a specific and propagable poison, inoculated himself at El-Hamed, on January 3d, twice by friction from the matter of a buboe, and once, on the ensuing day, by incision. He was attacked with rigor and other symptoms of fever on the evening of the 6th of the same month, which proved to be the plague, became delirious on the 8th; and continued in this state till the evening of the 9th, when he expired †.

Case in exemplification.

I gladly avail myself of this authentic narrative of the Director General of the Ordnance Medical Department, published since the preceding pages were written, in confirmation of the general statement here offered; and as containing, if a feeling of high esteem and friendship have not unduly biassed my judgment,

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* Guthrie's Observations on the Plague, &c. in Edin. Med. Comment. Vol. VIII. p. 348.

† Med. Trans. Vol. VI. Art. VIII.

one of the most valuable documents we possess on the subject; particularly in respect to the best practical means of opposing the influence of this desolating scourge upon a large scale.

Plague in the British army of Egypt; from Sir J. Webb's narrative.

Sir John Webb's narrative embraces the history and progress of the plague as it appeared in the British army employed in the conquest of Egypt in the years 1801, 1802, and 1803, during the whole of which time he was present and actively engaged in arresting its course: and it justifies us in drawing the following conclusions. Firstly, that the disease is specifically contagious. Secondly, that the atmosphere of contagion is very limited; and that hence it is by no means difficult to avoid being infected. Thirdly, that the disease makes its attacks with very different degrees of malignity, at different seasons of the year, and on different constitutions. And fourthly, that those who reside in a place in which the plague exists, and have been gradually inured to the influence of the pestilential miasm, are less disposed to be affected by it than those who are fresh to its poison; and, as in the case of the jail-fever, may carry about them, in their clothes, effluvium enough to infect those who come within its atmosphere, while they themselves remain in a state of health.

Specifically contagious.

The first position is sufficiently proved, not only by the test of inoculation just adverted to, but by numberless other facts; of which one of the most forcible is the following: A lieutenant of the 10th regiment of foot, residing in Alexandria, was attacked with the disease and conveyed within the boundary of the quarantine. A rent having been made in his musquito curtain, it was taken without his knowledge by John Lee, a private, and servant to the lieutenant, who prevailed on the centinel to let him pass in direct violation of orders, to another private of the same regiment of the name of William Bower, to be repaired; after which Lee immediately carried it home, and at his own request accompanied his master into the pest hospital, and attended him till he recovered. On the fourteenth day after this visit of Lee

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to Bower, the latter was taken ill with very suspicious symptoms, which, on the idea that it was an attack of plague, could be accounted for by no one till the application to repair the musquito curtain was recollected by the patient. The suspicions were confirmed on the next morning, and in the evening he died.

Atmosphere of contagion very limited.

So long, however, as the line of separation was faithfully maintained, and the sound and the diseased were thus kept distinct, there was scarcely an instance in which the disease broke out among the former. I say scarcely an instance, because an anomalous case or two occurred occasionally. But such was the judgment and the vigilance exerted from first to last, that the Board of Health were able to trace almost every instance of fever to the source from which it was derived, notwithstanding the difficulty of maintaining a rigid and permanent prohibition of all communication whatever. And hence it is most probable that the few exceptions to the general fact proceeded from a disobedience of orders which the Board were not able to detect.

Disease exhibits different degrees of malignity in different seasons of the year.

In general, Sir John Webb observes that the course of the disease is nearly the same every year, and equally varies in different seasons of the year. In Egypt it commences in November, at which time it rages with its most deadly malignity, "and those who are affected by it sink into the grave almost without complaint." It continues its ravage with little abatement through the winter and the earlier part of the spring, when, as the weather becomes warmer by the approach of summer, its attacks are less frequent, its symptoms much milder, and it subsides into a manageable malady; still, however, retaining the characteristic test of glandular affection: and on the 24th of June the Turkish government announces to the public its supposed cessation by a discharge of cannon.

Whether the miasm be ever entirely destroyed.

Sir John, however, with great judgment entertains doubts of its entire cessation even then or at any time; and brings a proof or two of its existence during the period of official emancipation. In few words he conceives the plague to exist in Egypt as the small-pox exists in England; only, from a greater regularity in the atmospheric changes of the country, evincing a greater regularity of epidemic flux and reflux, operated upon at the same time by contingencies often difficult to be developed; and hence equally varying in violence and extent.

Nearly inert upon those long exposed to its action.

That the miasm of plague, like that of typhus, is sometimes inert upon those habituated to its influence, is obvious from the following fact. "When our Pest establishment at the camp was broken up, I discovered that the Arab servants, who had been employed in it had secreted a great part of the clothing of the men who had died of the plague; some of which they wore with great satisfaction and *perfect impunity*." I have noticed this effect of habit in the preceding view of the plague at Mogadore: and to the same cause Sir John Webb ascribes it that the Chasseurs Britanniques, on their first arrival at Alexandria from Trieste, suffered far more severely from the disease than the troops that had been stationed there for some months.

Attack sometimes peculiarly slight.

How slightly the disease makes its assault upon some constitutions, may be inferred from the case of one of the sailors of the Major transport, who was attacked towards the end of March with an inguinal buboe, but was otherwise *in perfect health*. "The man," says the Director General, "declared he had had it three days, and attributed it to cold. I was, however, satisfied, after a careful inquiry into his state, and an examination of his leg and thigh of the same side, that it was an effect of pestilential contagion, but in its mildest form. He was, therefore, placed in a separate tent, and a gentle aperient was administered, which was all the medicines he required. On the 2d of April I found the swelling had begun to diminish, which it continued to do until it entirely disappeared."

Interesting case of a more fatal kind.

The following description is of a different character. It is written with a touching simplicity that does credit to the author's heart, and will not be read without feeling

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by the most torpid. "As I approached the beach to examine them (the sick and suspected of the Major transport), the first object that presented itself was a young woman supported in a chair (Francisca Kennis), moaning under oppressive disease. She stared wildly about, quite insensible to every object around her; and there was a muddy glistening in her eyes, which I had seen described, but had never before observed. Her husband stood over her in the deepest distress, and held a lovely infant to her breast, who tranquilly sucked the poison that soon afterwards destroyed him. I feared at first that force would have been necessary to separate the father from his wife and child, but he at length yielded to entreaty, and was removed from the infection though too late to save his life. She was conveyed to the Pest Hospital, where she soon expired; and the child was confided to an Arab, who fed and watched over it with the greatest care. On the 28th of March, the fifteenth day after the separation took place, the infant was attacked with plague, and languished until the 14th of April, when death terminated his sufferings *."

Average of the loss sustained under the regulations adopted.

Upon an average, from a table of the general return of the loss sustained by the British army from the plague, during the conquest and evacuation of Egypt, from the 8th of March 1801 to the 8th of March 1803, comprising just two years, it appears that the whole number of sick was 660:—of whom 361 died, and 299 were discharged cured: making the deaths rather more than half the number attacked. And further, that of the above 660, 612 were seized between March 8th, 1801, and June 30th, 1802, being nearly sixteen months; and only 48 between July 1st, 1802, and March 8th, 1803, including the remainder of the time: a result which reflects a very high degree of credit on the means resorted to on the occasion, and on the vigilance and activity with which they were carried into execution: 361 being the entire

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* Loc. citat. p. 148.

loss sustained from this fatal scourge operating through a period of two years: whilst in the French army in the same quarter, as we learn from M. Desgenettes, not more than one in three of those that suffered were fortunate enough to recover.

Hence plague evinces discrepancies in all parts of the world: but still preserves an identity of character.

Such is the history of plague as it has shown itself in different ages and parts of the world, collected from the writings of unimpeachable eye-witnesses of its progress. In the midst of many discrepancies it exhibits a sufficient identity of character; and I have dwelt upon it the more largely, because, from the time of Dr. Cullen to the present day, its discrepancies have been chiefly attended to. And hence, while some writers of respectability have attempted to divest it of one, and others of another of its peculiar and most striking attributes, as that of contagion*, or that of atmospheric influence†, some have been equally inclined to sweep the whole away at once, and to reduce it to a mere modification of typhus or some other fever of great malignity‡.

General pathology deducible from the above narratives.

From its history then, let us endeavour to collect its pathology, or the laws by which it is governed, and which connect it with or separate it from other exanthems.

Under the occasional influence of concomitants.

Hence varied in the nature of its fever.

In the first place, it is obvious that the plague, like many other febrile eruptions, is under the occasional influence of various concomitant circumstances that give a considerable diversity to many of its features. Its proper fever is an acute typhus; but even this, by the constitution of the individual, or the peculiar state of the atmosphere, sometimes changes to a remittent, and even

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[*] Lange Rudimenta doctrinæ de peste.—Magirus, Von der Pest.—Maclean, Results of an Investigation respecting epidemic and pestilential diseases, including researches in the Levant concerning the plague.

[†] Sir Brooke Faulkener.—Tully, Hist. of Plague in the Islands of Malta, Gozo, Corfu, &c. 8vo. 1821.

[‡] Dr. W. Heberden, Observations on the increase and decrease of different diseases, particularly the plague, 8vo. 1801.—Dr. Hancock, Researches into the laws and phænomena of pestilence, &c. 8vo. 1821.

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A small degree of fever only sufficient to perfect the specific eruption.

Exemplified.

an inflammatory type. So the measles and small-pox, whose proper fever is a cauma, sometimes change, as we have already seen, into a typhus or synochus. The final end of the fever in plague, as in other exanthems, is to restore the body to health by throwing the morbid ferment to the surface in a specific way. And, as in other exanthems also, a very small degree of fever is requisite for this purpose. And hence we find that wherever the disease runs through its progress kindly, the fever is slight in degree and short in continuance; and the specific eruption shows itself in its perfect character. In the small-pox we sometimes find scarcely any eruption, and very little disturbance of the system; and the same benign disposition is occasionally found to attend the plague; for the soldier who is struck while in the ranks with a sudden shock, or m' drop, as the Arabians call it, and is taken to the hospital on one day, has in a few instances, by proper treatment, passed through the febrile assault in three or four hours and resumed his station the day after*: the disease in such cases evincing the same rapidity of attack and recovery as we have already noticed in that tremendous and fatal scourge, the spasmodic cholera of India, to which the plague bears a near resemblance in many respects.

The proper and salutary eruption buboes.

Only accompanied by carbuncles when the fever is higher.

Next, the proper eruption of plague is that of buboes; and where these alone arise, and in their proper period, the disease is not accompanied with much danger. They are always a favourable sign, and seem to afford the longest indemnity against future attacks. When the fever is more considerable, carbuncles, the jimmerat (حمرات) of the Arabians, are thrown out at the same time over different parts of the body; and there is in this case always great debility, which is probably the cause of their appearance, and a considerable degree of danger. And if the fever run still higher, the danger will be pro-

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* Edin. Med. Com. Vol. III. p. 352.

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portionably increased, the proper eruption of buboes may perhaps be supprest, and carbuncles alone be found, highly malignant, and secreting a most acrid and corrosive ichor which burns as it oozes and spreads about, and occasionally forms extensive trails of painful and distressing sores.

When very severe buboes superseded by symptoms of malignant typhus.

But the fever is often still more acute, and especially, for a reason we shall presently notice, when the disease earliest appears among a people; and the danger may be imminent from the first shock. The typhous symptoms are here of the most malignant nature; there is a sudden and almost utter exhaustion of sensorial power without the smallest means of recruit: all the larger viscera are disturbed in their functions, the head, the heart, the lungs, the stomach, and the liver; some overwhelmed with congestion, others sinking and powerless, as though the morbid virus were translated from the surface to themselves; the only active principle throughout the entire system being that of fever itself; which increases with the increase of the general mischief, and, like a house on fire, gathers fuel from the downfall of the fabric. All the symptoms of putrefaction make an early appearance, and appear at the same time under these circumstances; the animal spirits fail and are despondent; the respiration is anxious and feeble; the stomach faint and sinking, or the brain comatose; purple stigmata and vibices are scattered over the body; and the patient is destroyed by the incursion of the eruptive fever, as often happens in the small-pox, before the specific tokens have time to show themselves.

Primary source of plague uncertain: but of early date.

Of the primary source of plague we are in as much uncertainty as in respect to that of any other exanthem; it appears, however, to have a just claim to a higher antiquity than any of them; for we have already seen that it was known in an early era to the Greeks, and that histories of it, as it has shown itself in different ages and countries, have descended in a regular stream of Greek, Arabic, Roman, and neoteric writers down to our own day. That, like other exanthems, it consists in and

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Dependent for an epidemic spread upon the common auxiliaries of putrefaction.

Whether ever ingenerate doubtful.

is propagable by a specific virus is unquestionable; for we have also seen that it has often been put to the test of inoculation; and, like most other exanthems also, it appears to be dependent for an extensive spread upon the same accessories as give rise to febrile miasm or contagion; and which, as already noticed, are for the most part the common auxiliaries of putrefaction*. Whether any combination of these be capable of originating it of themselves either without or within the human body, or whether it be only propagable by a stream of hereditary descent from primary matter communicated from place to place, is a problem to the present hour; though it is probable that the law which in this respect governs most of the other exanthems as measles, small-pox, and scarlet-fever, governs the miasm of plague also: for all of them, while derivable by communication with the affected, seem, at times, to have assumed the form of epidemics.

Law of febrile miasm applicatory to exanthems,

and particularly to plague:

on this account little sphere of infection limited in pure air;

In deducing the more obvious laws that regulate febrile miasm, I observed at some length that whenever originating from the human body itself, this miasm does not seem to be very volatile and is soon dissolved or decomposed in an atmosphere of pure air†: and we have since had occasion to apply the same remark to the specific miasms of all the preceding exanthems. I have now to observe that it applies especially to that of plague, whose sphere of infection in pure air appears to be more limited than that of any of the rest; on which account, indeed, it has been held by many who have practised in the field of this disease to be communicable by contact alone. Such, in truth, seems to be the surest way of communication, and may in all common cases be regarded as a way altogether irresistible: but it is not the only way. In the pure and healthy air of Malta, during the irritation of the plague in 1813, it was almost the only mode of transmission, and hence the readiness with which it was sub-

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* See Vol. II. p. 75.

† Vol. II. p. 75.

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duced by the rigid line of quarantine, which was so wisely proposed by the medical officers, and enforced by Sir Thomas Maitland. But several of the most intelligent residents on the spot, and even Mr. Tully himself, who in his work on this subject has held up contagion as the sole mean of propagation, have admitted to me in conversation that the disease might be received by the breath of the infected without contact, upon a very close intercourse. Sir B. Faulkner's opinion upon this point is in perfect union with Mr. Tully's: "It is communicated," says he, "only by contact *or* close association with the person or thing infected*." And in consequence they admit that the air, even in its purest state, may become a vehicle of communication, though to a very short distance, and probably for a very short period of time after being impregnated: since, as already observed, the miasm of plague dissolves in pure air with great rapidity,

but possessing a wide range in air loaded with other contaminations,

When, however, the atmosphere is stagnant or already loaded with foul effluvia of any other kind, especially such as proceed from the filth of close or crowded rooms, or the putrescent decomposition of animal or vegetable substances, as no modification of febrile miasm, we have had reason to state antecedently, dissolves readily; and consequently the seeds of such disease may continue floating for a considerable period of time, and be driven by currents to some distance in full possession of their specific mischief; and hence, even a sporadic fever may be converted into an epidemic.

and hence at times epidemic.

It is in this way that plague appears in many cases to have extended itself; for it would be unjust to the character and good sense of a cloud of intelligent witnesses to deny that this disease sometimes also assumes the form of an epidemy. But I believe it will be found an universal fact, that it has never exhibited itself in this form except when aided by the above auxiliaries.

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* Minutes of Evidence before the Select Committee of the House of Commons.

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Thus much is certain, that it has always raged with most violence and to the greatest extent in cities and districts where the atmosphere has been least pure, the human frame most debilitated, and the tendencies to putrefaction strongest and most multiplied, as in times of famine or any other general distress, and in the close and squalid quarters of the poor of every city into which it has found an entrance, if it have not even originated there.

This fact, indeed, is so common, that while many writers have contended that plague can only be propagated by actual contact, others, of equal authority, have maintained that the disease is altogether an epidemic, as directly dependent upon the state and constitution of the air as any epidemic whatever; and that to attempt to cure it by a mere interdict of communication between individual and individual is equally weak and wicked. The view now taken of the disease is calculated to reconcile these conflicting opinions, and to bring into a state of amity the most sturdy adversaries in the contest. In enforcing the line of quarantine at Malta *, Sir Brooke Faulkner most wisely took especial care to enforce at the same time a rigid attention to purification of every kind, and I shrewdly suspect that, without the latter, his cordon would have been but of little avail.

Hence plague is regulated by the general laws of other exanthems:

Thus far the ordinary course of plague does not essentially vary from that of most of the exanthems we have already considered. The general laws of any one are those of the whole: they are all deflected, and exhibit some variety of features by particular circumstances; but each, to an attentive eye, gives sufficient proofs of identity in the midst of every modification, and is specifically distinguished from the rest.

but evinces some peculiar properties.

There are two or three properties, however, which, if not peculiar to the plague, are indented upon it far more strikingly than upon any other disease of the same

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* Treatise on the Plague, by Sir Arthur Brooke Faulkner, M.D. 8vo. 1820.

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order, or perhaps of any order whatever: and we will next proceed to a brief examination of them.

More rapidly communicable by the pores of the skin,

The ordinary mode of infection on exposure to an exanthematous patient is, by inhalation or deglutition; probably by the former; for variolous contagion has been swallowed in the way of experiment without producing any influence. How far any other virus besides that of the plague is receivable by the pores of a sound skin is to this hour a matter of doubt. In the case of plague, however, there ought not to exist the shadow of a doubt; for, though the miasm is probably communicable within the sphere of its activity, by the mouth or nostrils, direct contract or absorption by the skin forms the ordinary means of its conveyance. Upon this point, almost all the writers of authority, who have been professionally engaged in opposing its progress, are concurrent. And hence, again, whatever obstructs or corrugates the mouths of the cutaneous absorbents becomes a certain anti-loimic. Oil seems to do this most effectually; it was accounted "the sovereignst thing on earth" in the last pestilent ravage at Malta; and Mr. Tully has informed me that there was no instance of an attendant on the infected having received the contagion so long as he was regular in thoroughly illining himself with oil, wearing a dress soaked in oil, or a covering of oil-skins. And to the same effect is the evidence of Sir Brooke Faulkner, physician to the forces at Malta in 1813, before the Select Committee of the House of Commons, June 14, 1819, who, in answer to the question "How were the military attendants preserved?" replied, "With respect to the Pest hospital in which I attended, they were, in my opinion, preserved by wearing a dress of oiled silk, which prevented the possibility of any contact of infected matter with the skin, and probably, also, by its promoting free and copious perspiration, and, in consequence, preventing absorption *."

and hence often incommunicable where this channel is obstructed.

Exemplified.

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* Copy of Minutes, &c. As also Sir A. B. Faulkner's Treatise on the Plague, &c. Appendix, p. 16, 8vo. 1820.

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To the same effect it has been asserted by Mr. Baldwin of Cairo, that among upwards of a million of inhabitants carried off by the plague in Upper and Lower Egypt during the space of four years, not a single dealer in oil, so far as he could learn, had fallen a sacrifice to it *." A similar remark is made by Mr. Jackson respecting the crolies or labourers in oil-warehouses during the Barbary plague just referred to. In that of London in 1665, it is specially observed by Baynard, and most of the writers, that the trades chiefly exempted were those of oilmen, fishmongers, tanners, bargemen, and watermen: the first three evidently protected by the greasy viscidity that covered the hands and dress generally; and the last two by living separate from the scene of contamination, as though cut off by a quarantine. While, on the contrary, it has been quite as generally remarked that the descriptions of persons most exposed to infection are bakers, cooks, and smiths, the pores of whose skin are kept in a state of perpetual irritation and relaxation from their respective employments.

Prolonged exposure to the miasm of plague torpefies the irritability of the absorbents to its action more than in other exanthems.

How far an habitual exposure to the miasms of other exanthems torpefies the skin to their action, or whatever other organ affords them an inlet; or how far the system at large may be thus torpefied, has not been determined with any degree of satisfaction. That stimulants of most kinds have a tendency to produce such torpitude and inirritability is unquestionable; and that the miasm of gaol-fever has occasionally done it, will not soon be forgotten in the courts of judicature of our own country. It is hence probable that the effluvium of exanthems, in general, is possessed of a like power. But in the case of plague the fact seems to be unequivocally and most strikingly established; for we find in every country, after it has raged for a certain number of weeks or months, that the disease is both caught more sparingly, and exercises far less violence, at least upon

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* Travels, &c. Chap. xvii.

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those that have been exposed to its aura; for upon new comers or strangers it still retains its virulence. The history of almost every plague may be taken in confirmation of this remark; but it is particularly established by numerous facts already quoted from Sir John Webb and Mr. Jackson. It is highly probable, that if the corps of troops which, after the mortality had subsided at Mogadore, arrived there from the city of Terodant in the province of Suse, *where the plague had been raging* and had subsided, had remained at Terodant, it would have continued to escape. But it lost its immunity by an exchange of contaminated for pure air in the course of its journey, and the organs, having acquired their wonted irritability and susceptibility, were as open to infection as those of fresh persons.

The acquisition, then, of a growing torpitude to the action of the pestilential effluvium beneath an habit of exposure to its influence, seems unquestionable; and puts us in possession of one mean of the progressive subsidence of this tremendous scourge, after having occupied a town or district for a certain period of time.

As rendered more active by a peculiar state of the atmosphere, rendered equally inert by some other state.

But there is an additional cause of its cessation, which is equally striking, and forms another of the peculiar features of this complaint. As a particular state of the atmosphere, such, for instance, as its being saturated with foreign corpuscles from decomposing animal filth, renders it a bad solvent of pestilential miasm, and consequently a ready vehicle for the spread of the disease, a particular state of the atmosphere of some other kind seems to possess a power of dissolving the effluvium instantaneously, in many cases, and of diluting its virulence in others. Of the immediate nature of this atmospheric change we are in a very considerable degree of ignorance, but of the general fact there is not a quarter of the world that does not furnish us with examples: so that all of a sudden the scourge that has hitherto been sweeping off one or two thousand inhabitants of a city every day either totally vanishes, or drops its mortality, and only continues in a form so mild as to excite no

The nature of this peculiar state unknown. Exemplified.

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alarm. Dr. Hodges notices this sudden change very particularly in the plague of London. "In the beginning of November," says he, "people grew more healthy, and many came into the city without fear; so that in December they crowded back as thick as they fled: and such confidence was now inspired that many went into the beds, where persons had died, before they were cold, or cleansed from the stench of the diseased; *for the nature of the disorder was changed* *. "Even the physicians themselves," says another eye-witness of the same pestilence, "were surprized: wherever they visited they found their patients better. Either they had sweated kindly, or the tumours were broken, or the carbuncles went down, and the inflammation round them changed colour, or the fever was gone, or the violent head-ache assuaged, or some good symptom was in the case: so that in a few days whole families that expected death every hour were revived and healed, and none died at all out of them †."

Alpinus speaks in the same manner of the sudden decline of mortality in the plague of Egypt: "In the month of June," says he, "to whatever degree pestilence may be raging in Egypt, as soon as the sun enters Cancer it ceases entirely." And Dr. Russell confirms this remark as follows:—"It is agreed on all hands that about the 24th of June, at Cairo, there is a remarkable sudden alteration in the contagious property of the plague, as well as in the malignity of the disease itself, to whatever cause it is to be ascribed; and Alpinus's remark, that at the same time it ceases, the furniture in infected houses suddenly loses all power of communicating the disease to the inhabitants, so that health and tranquillity are at once restored, agrees in some measure with the general experience of other places in Turkey, where it is well known houses or goods undergo little or no purification ‡." Mr. Bruce speaks to the same effect: "The

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* Loimol. p. 27.

† Journal by H. F. p. 250.

‡ On the Plague, B. III. Ch. v.

Gen. IV. Spec. I. Anthracia Pestis. Plague.

Turks and Moors, immediately after this day, expose in the market-places the clothes of the many thousands that have died of the plague during its late continuance; and though these consist of fur, cotton, silk, and woollen-cloths, which are stuffs the most retentive of the infection, no accident happens to those who wear them, from their happy confidence." And we are hence able to enter more fully into the meaning of a passage already quoted from Sir John Webb, in which he tells us that on the approach of summer the plague subsides into a manageable malady, and that on the 24th of June the Turkish government announces to the public its supposed cessation by a discharge of cannon.

Hence influenced in its rise, progress and decline, by the state of the atmosphere; but essentially dependent upon specific miasm.

Unless, therefore, we withhold, most unjustly, all belief in this accumulation of unimpeachable evidence, it seems impossible not to admit that the state of the atmosphere is connected with the decline of the plague, and consequently with its previous progress: while its dependence upon a specific miasm seems equally clear from its occasionally commencing in the healthiest, as well as in unhealthy seasons; though most frequently, and most fatally, in the latter. In the plague of London, as we have already seen, the disease followed upon a malignant epidemy; in that of Athens, the preceding year had been so peculiarly healthy that mankind seemed to have acquired an exemption from complaints of every kind. In that of Egypt, it makes a regular return whatever be the constitution of the season.

In entering upon the medical treatment of plague, I regret that I am not able to give the judicious plan, in conjunction with its results, that was adopted for the British army in Egypt. The care of the Pest Hospitals did not fall within the range of Sir John Webb's department, but I availed myself of his friendship to solicit information upon this subject from his colleague Dr. Buchan, who, I have reason to believe, had made a journal of very valuable notes in relation to it. The public will hear, with regret, that this information is incommunicable from the destruction of a great part of these

Gen. IV. Spec. I. Anthracia Pestis. Plague. Medical treatment. Venesection whether advisable.

minutes, which followed the fate of Dr. Buchan's clothes and bedding at the time of his quitting the hospitals.

Respecting the proper plan to be pursued, there is still some controversy. Early, copious, and even repeated venesection was at one time, and by very high authorities, recommended in this disease, and especially by Sydenham at the commencement of the plague of London in 1665 and 1666, before the appearance of any eruption. Like Dr. Rush, in North America, respecting the yellow fever, he was stimulated by the bold determination of quelling this formidable enemy in its very onset, and before it should have made a fatal breach in the constitution. This practice, however, has been far less successful, and therefore less persevered in, with regard to the plague, than with regard to the yellow remittent. Dr. Mergens says, he would never advise its being resorted to: and even Sydenham hesitated as he became more experienced. "But though," says he, "I approve and have often experienced the utility of bleeding, yet for several reasons I prefer the dissipation of the pestilential ferment by sweat, because sweating does not in the same degree prostrate the patient's strength *." Where there is great and threatening congestion in a large or vital organ, bleeding, and bleeding freely, should certainly be employed, for this symptom alone would lead to a fatal issue. But the practice must form an exception to the general rule, and not the rule itself.

Application of external cold.

The use of external cold by the application of sheets of pounded ice to the body generally, has been also tried, but with no satisfactory result. It has, indeed, been chiefly confined to Russia, under the vigilant eye of M. Samoilowitz. How far it might succeed in warmer climates is uncertain, but ablution with cold water offers a fairer promise. A brisk emetic, given at the commencement of the attack, has often proved of the utmost advantage. M. Degio, to whom I have already adverted, affirms that he has

Great use of emetics.

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* Loco citato.

seen men, suddenly cut down by the disease when on duty, as though shot by a musket-ball, so completely recovered by an emetic given instantly, as to be on duty again within twenty-four hours afterwards *. If the nausea and bitter taste in the mouth be not removed by a first emetic, a second, and even a third is often prescribed; and, when the symptoms are urgent, at a distance of not more than four or five hours from each other. And this plan is found to produce far less exhaustion than that of purging which the patient is often unable to support.

Warm sudorifics.

After evacuating the stomach, and hereby exciting a determination towards the skin, the cutaneous action is to be maintained by active and cordial sudorifics, which, indeed, constitute the ordinary plan of the present day. For cordials, there is the utmost necessity: the debility is, from the first, extreme and threatening, and the vascular action must be supported at all adventures. Even Sydenham, who at one time hesitated as to the use of them upon theory, in which he did not often indulge, was obliged to admit their beneficial effects, though he regarded the practice as hazardous. With respect to sudorifics, the concurrent voice of all physicians in all countries is in their favour. Diaphoresis is, indeed, the evacuation that relieves most certainly and most effectually; and it should be maintained by warm, diluent and supporting drinks. James's powder employed without cordials does not appear adviseable. It was very largely administered at Moscow, but, according Dr. Mergens, with no particular advantage. In many cases, the warmer opiates as the opiate confection, have been found serviceable, assisted with camphor and ammonia, and blisters repeated in succession.

Perspiration the natural means of relief: but excited by antimonials alone exhausts, and is rarely useful.

Warm opiates, camphor and ammonia.

As oils of all kinds applied to the surface of the body have been found a good preservative against the absorption of the contagious miasm, it has been also had recourse to, and employed in the same manner as an anti-

How far oil may be regarded as an antidote.

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* Substance of notes taken at the Russian army during the prevalence of the Plague. See Edin. Med. Com. Vol. VIII. p. 352.

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Treatment.

dote when the disease is present, and particularly in the east where the zeit jagghy (زيت ياغي), or olive oil, has been regarded almost as a specific. Mr. Baldwin affirms that he made use of it in this form very extensively at Cairo, and with great success: and it is usually employed in Barbary and at Constantinople. The French physicians, however, do not seem to have relied much upon its virtue. M. Sotira suggests that Mr. Baldwin's benevolence in the distribution of oil for this purpose was occasionally abused, and the cures by oil exaggerated and multiplied by those who wished to have oil gratis. M. Assilini, however, inclines to a belief that it may be useful; and it is most pointedly recommended by father Louis of Padua, director of the hospitals at Smyrna. The application should be accompanied with a long-continued friction; and, when successful, is followed in about half an hour by a perspiration profuse and general, and which affords immediate relief. It is not difficult to reason upon the subject: the oil probably obstructs the pores of the skin, and prevents the escape of caloric, which, aided by the friction, accumulates on the surface, and shortens, or altogether prevents, the shivering fits, which are otherwise very severe. Sir Brooke Faulkner admits its sudorific power, but is by no means friendly to its use; believing that even by this very power it has often proved highly injurious. Yet he does not speak from much personal acquaintance with its effects; but tells us that "a gentleman who superintended the health of one of the districts of Valetta, assured *him* that although he had constant opportunities of seeing oil frictions used by those under his immediate orders, he was satisfied that it was not merely useless *as a defence*, but hurtful to the general health, by the debility which succeeded to the profuse perspirations which it occasioned." Sir Brooke, in the passage of his work now referred to, estimates its prophylactic virtue as low as its remedial *, and is

Its probable action.

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* Treatise on the Plague, &c. pp. 231, 232.

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thus far in a state of direct antagonism, not only with Mr. Tully, who was afterwards Inspector of quarantine on the same station, but with himself, at the time of delivering his evidence before the Select Committee of the House of Commons; an extract from which we have already quoted.

During remissions, bark and port wine.

In the remissions of the fever, the bark is used in great abundance, commonly intermixed with port or other generous wines. During the fatal plague which depopulated the whole of western Barbary in 1799, the Emperor Sidi Soliman is said to have had the disease twice, and in both cases to have derived his cure from a free use of the bark: in consequence of which, he was never afterwards without a large supply of it. When buboes or carbuncles appear, they are always to be promoted and matured by warm cataplasms.

Preventives.

Camphor, smoking tobacco, fumigation with gum sandrac, and the vinegar of the Four Thieves, are still largely employed as preventives. But the contagion, as we have already observed, is not peculiarly active, and the best prophylactics are cleanliness, pure air, freedom from actual contact, a liberal diet, and chearful spirits. I may add that vaccination has been repeatedly tried; but has answered no good purpose. Sir Brooke Faulkner, indeed, gives a striking example of its failure, for "in a numerous family," says he, "who had been recently vaccinated, the whole fell sacrifices to the prevailing contagion, with the exception of the parents who had never undergone the operation *."

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* Treatise on the Plague, p. 233.

SPECIES II.

ANTHRACIA RUBULA.

Yaws.

TUMOURS NUMEROUS AND SUCCESSIVE; GRADUALLY INCREASING FROM SPECKS TO THE SIZE OF A RASP-BERRY: ONE AT LENGTH GROWING LARGER THAN THE REST; CORE A FUNGOUS EXCRESCENCE; FEVER SLIGHT: OCCURRING ONLY ONCE DURING LIFE: CONTAGIOUS.

GEN. IV. SPEC. II. Origin of the specific name. Why called frambœsia.

THE term RUBULA, by which this disease is distinguished in the present work, is derived from the Latin *rubus*, "a black-berry or rasp-berry," in French *framboise*, whence the common but barbarous name of *frambœsia*, quite as objectionable as that of *scarlatina;* and which the author has thus attempted to exchange for an euphonous and strictly classical term, in perfect accordance with the ordinary law of diminutives, which seems to prevail through the general nomenclature of exanthematous diseases, as rubeola, variola, varicella. Perhaps morula, from morus, a mulberry, a diminutive used in an approximating sense by Plautus, might have been somewhat more appropriate, since the eruption seems to bear a nearer resemblance to small mulberries than to raspberries. But as this last plant has laid a foundation for the vernacular name both on the African and Amecan coast, on the former of which it is called *yaw* and on the latter *pian* or *epian*, both importing rasp-berry; and as the earliest writers have, upon this authority, denominated it *framboise* or *frambœsia*, I have not felt myself at liberty to deviate from the original idea.

Meaning of the terms yaw and epian.

The disease, as it occurs in Africa and America, ex-

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Spec. II.
Anthracia
Rubula.
Yaws.

exhibits some diversity, and lays a foundation for two varieties as follow:

α Guineensis. African Yaws.	Attacking infants and young persons chiefly; and subsiding as soon as the eruption appears.
β Americana. American Yaws.	Depascent; and destroying progressively both muscles and bones.

No account of the disease in the early writers.

In the precursory remarks to the present genus, I have stated the reasons for introducing this species into the list of exanthems, or febrile eruptions; and the history of the disease will still further show that it could not with propriety have been placed under any other division. It is singular that we have no decided account of this malady among the early writers; nor, indeed, any account whatever till after the appearance of syphilis; whence, as several of its symptoms, and especially when the bones become affected, bear a resemblance to those of syphilis, yaws have been supposed by some writers to be a species of lues, and especially of that which in Scotland is denominated sibbens or sivens, of which we shall treat in the ensuing order: but the eruptive fever and consequent efflorescence, the indemnity from a second attack, as well as other symptoms, draw a sufficient line of distinction.

Supposed by some to be a modification of syphilis: but distinguishable by diacritical marks.

α A. Rubula Guineensis. African yaws.

The mildest and probably the original form of the disease.

The first variety will often run through its course favourably without any medical assistance whatever; and is, indeed, often injured by it when incautiously and injudiciously interposed. This seems to be the primitive form, and that under which it chiefly shows itself in Guinea, and some other parts of Africa, where, as just observed, it is vernacularly called YAW or MORBUS RUBULUS.

Diagnosis.

It commences, like the other exanthems, with the ordinary symptoms of fever, although they are usually more tardy in their progress. Hence the precursory symptoms are languor, debility, head-ache, loss of appetite, rigor, and pain in the back and loins, which continue

Gen. IV. Spec. II. α A. Rubula Guineensis. African yaws.

for a few days with evening exacerbations. To these succeeds the specific eruption; consisting of successive crops of papulæ, at first not larger than a pin's head, but increasing in size with every series till they acquire the magnitude of a rasp-berry or mul-berry. The smaller papulæ become real pustules, and discharge an opake whitish fluid when broken, and concrete into dense scabs or crusts. The larger are fungous excrescences, and, in their granular surface, as well as in their size and colour, bear a near resemblance to the fruit from which they derive their name. These sprouting tumours have but little sensibility, and suppurate very imperfectly; discharging rather a sordid ichor than a matured pus. They originate in scattered groups over different parts of the body, but are chiefly found, like the eruption of plague, in the groins, parotid glands, axillæ, and about the arms and pudenda: though they often disfigure the neck and face. The colouring matter of the hair, wherever they are seated, is obstructed in its secretion, and, as in old age, the hairs themselves, from a brown or a black, become a dead white. Dr. Thomas, who has given a very accurate account of this variety, apparently from personal knowledge, observes that, "In general the number and size of the pustules are proportioned to the degree of eruptive fever. When the febrile symptoms are slight, there are few pustules; but they are mostly of a larger size than when the complaint is more violent and extensive*."

Duration of the eruption variable.

The duration of the eruption is uncertain, and seems to depend considerably upon the state of the habit, and its power of promoting their maturity. They sometimes acquire full perfection in four or five weeks, and sometimes demand two or three months. In their progress to this state, there is usually some one that appears larger and more prominent than the rest, and is called the master-yaw. It is, in truth, a broader and more sloughy fungus, and discharges a larger portion of erosive sanies, which if

Master-yaw.

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* Pract. of Phys. p. 643. Ed. 1819.

Gen. IV. Spec. II. α A. Rubula Guineensis. African yaws.

not washed off as it issues, will spread widely, and sometimes work its way to an adjoining bone, and render it carious. When the tumours point from the soles of the feet, they cannot press through the thickness of the skin, and hence acquire form imperfectly, and produce highly elevated calluses, which are called tubba or crab-yaws: and often very much impede the power of walking. As soon as the eruption has attained its height, the tumours, when the disease proceeds favourably, become covered with crusts or scabs, which fall off daily in whitish scales; and, in the course of a fortnight, the skin is left smooth and clean; the master-yaw alone remaining and demanding attention.

Tubba, or callosities in the soles of the feet.

Treatment.

In attempting the cure of this disease, the first step should consist in separating the patient fom his associates, to whom he will otherwise assuredly communicate it by contagion. He should then take freely of decoction of sarsaparilla or some other warm diluent, for the purpose of attenuating the specific virus in the blood, and quickening its passage towards the surface. And it is highly probable that the warm aperient bolus, composed chiefly of a scruple of sublimed sulphur and five grains of calomel, as recommended by the anonymous writer of a very excellent treatise upon the subject in the Edinburgh Medical Essays*, may be found serviceable, continued every night. The master-yaw must be attacked with escarotics, for it is to be destroyed in no other way. The callous tumours on the soles of the feet, should be softened by warm-water, or cataplasms of some gentle stimulant; and, when on the point of breaking, are best attacked with a slight application of the actual cautery, which proves the most adviseable escarotic. The diet should be nutritious and liberal, so as to support the strength during the progress of the disease. And under this mode of treatment it is rarely that a patient fails to do well.

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* Vol. v. Part. II. Art. LXXVI.

Gen. IV. Spec. II. α A. Rubula Guineensis. African yaws. Treatment. Mercury injurious at first, though useful as an alterative on the decline of the disease. Practice of the natives.

Mercury was at one time given in great abundance from the commencement of the complaint, under an idea that it would prove as beneficial as in the case of lues. But it is now sufficiently known to be productive of great mischief, and particularly when carried, as it used to be, to a state of salivation. It retards the cure, and generally aggravates the symptoms. It is often given in small doses as an alterative, when the disease is on the decline, and perhaps with advantage; but it ought never to be employed in any other form.

When the excrescences discharge a sordid ichor, they may also be stimulated with the nitric-oxyde mercurial ointment: but the natives themselves, who rigidly abstain from the internal use of mercury, employ, instead of this, a liniment of the rust or sub-carbonate of iron and lemon-juice, which proves a very useful application; though probably a solution of sulphate of zinc might answer better. And during the maturation of the eruption they excite a profuse sweat by what may called a warm air bath, which consists in putting the patient into a cask with a fire at the bottom in a brazier or small fire-pan; the top being covered over with a blanket. Under this mode of treatment a cure is said to be often effected in three weeks, and the funguses thoroughly healed *.

β A. Rubula Americana. American yaws. Evincing a most exasperated and chronic form. Probably imported from Africa by the slave trade.

The second, or American variety, is a far more terrible complaint; or rather is the same complaint in an exasperated and chronic form; and hence, though incomparably slower in its progress than the plague, is accompanied with a carbuncular eruption quite as mischievous and disgusting, and more certainly fatal in its issue. It was first distinctly described by M. Virgile of Montpellier, who had practised with great reputation at St. Domingo. There can be little doubt of its being imported into the West Indies along with the slaves from the African coast; and is here called, as already

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* Edin. Med. Com. Vol. II. p. 90.

Gen. IV. Spec. II. ϵ A. Rubula Americana. American yaws. Mama-pian or mother-yaw what?

observed, pian or epian, precisely synonymous with the African term yaw: the master-fungus being named mama-pian, or mother-yaw, as supposed to be the source or supply of the rest. The fungous berries in this form, precisely correspond to the carbuncle already described under the trivial name of *terminthus*, which consists of a "core of fungus spreading in the shape, and assuming the figure, and blackish-green colour of the fruit or berry of the pine-nut, or terminthus of the Greeks*." And it has hence been conjectured, but without sufficient foundation, that the disease of yaws is referred to by Galen and Dioscorides under this name.

Description and pitiable progress.

The erosive secretion from the carbuncles of this variety generally, but especially from the mother-yaw, spreads widely, and, in its meandering, destroys all the surrounding parts, not excepting the bones. Nothing can exceed the revolting scene of a yaw-house, or hospital for the reception of slaves suffering under this disease in the West Indies. "Here," says Dr. Pinckard, "I saw some of the most striking pictures of human misery that ever met my eyes. Not to commiserate their sufferings is impossible, but their offensive and wretched appearance creates a sense of horror on beholding them. Of all the unsightly diseases which the human body is heir to this is perhaps the worst. Some of these diseased and truly pitiable objects were crouching upon their haunches round a smoaky fire; some stood trembling on their ulcerated limbs; others, supporting themselves by a large stick, were dragging their wretched bodies from place to place; while many too feeble to rise, lay shivering with pain and torture upon the bare boards of a wooden platform†." Dr. Pinckard adds, that "unhappily this most odious distemper has not hitherto been found within the power of medicine: that it often exists for years, and even where

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* Cl. III. Ord. II. Vol. II. p. 289.

† Notes on the West Indies, Vol. II. Letter XXII.

Gen. IV. Spec. II. ℭ A. Rubula Americana. American yaws.

it sooner yields, its removal is more the effect of time and regimen, than of medical treatment.

Yet not incapable of alleviation or even cure by proper attention.

This view of the case is too generally true: but from the length of time which, under the best treatment, is required to effect a cure, it seldom happens that these miserable wretches receive all the attention which their situation deserves; and they are rarely sufficiently heedful of personal cleanliness, which, even alone, is of the utmost importance. This, with a generous diet to support the strength, pure air, regular hours of rest, and such exercise as can be used without fatigue, with warm balsamic applications to the sores, have not unfrequently succeeded where the bones have not become extensively carious. But the latter stages of the disease are horrible when it proves fatal: for the pains are excruciating, the debility extreme, and the bones are covered over with a quagmire of foul exostoses and corrupt ulcerations.

Whites less subject to it than blacks.

It is happy for the European inhabitants of the West Indies that they are less liable to this miserable malady than their slaves: probably from using a better diet and being more attentive to cleanliness.

CLASS III.

HÆMATICA.

ORDER IV.

DYSTHETICA.

Cachexies.

MORBID STATE OF THE BLOOD OR BLOOD-VESSELS; ALONE OR CONNECTED WITH A MORBID STATE OF THE FLUIDS, PRODUCING A DISEASED HABIT.

The words ordinarily used to import the diseases meant to be comprehended under the present order are CACHEXIA and IMPETIGO, or, as the Greeks expressed it, λύης, LUES, or LYES. None of these, however, exactly answer; and that on two accounts; first, because the order is limited to those depravities which seem to originate or manifest themselves chiefly in vessels or fluids of the sanguineous function; and, secondly, because no very definite sense has hitherto been assigned to either of these terms; and they have, in consequence, been used in very different meanings by different writers, from the time of Celsus to our own day.

Class III.
Order IV.
Range and explanation of the order.

Class III.
Order IV.
Dysthetica.
Cachexies.

Import of the ordinal term.

Upon this subject the author has dwelt at large in his volume of Nosology, and it is not necessary to add to the remarks there offered. The word DYSTHETICA has hence been adopted for the purpose of avoiding confusion, and is justified by the EUSTHESIA and EUSTHETICA (ΕΥΣΘΕΣΙΑ and ΕΥΣΘΕΤΙΚΑ) of Hippocrates and Galen, importing a "well-conditioned habit of body," as their opposite DYSTHETICA, from the same root, imports "an ill-conditioned habit," but a habit as just observed, originating in or dependent upon the organized parts or fluids of the sanguineous function. Thus explained, it will be found to embrace the following genera:

1.	PLETHORA.	PLETHORA.
2.	HÆMORRHAGIA.	HEMORRHAGE.
3.	MARASMUS.	EMACIATION.
4.	STRUMA.	SCROPHULA. KING'S EVIL.
5.	CARCINUS.	CANCER.
6.	LUES.	VENEREAL DISEASE.
7.	ELEPHANTIASIS.	ELEPHANT-SKIN.
8.	BUCNEMIA.	TUMID-LEG.
9.	CATACAUSIS.	SPONTANEOUS IGNESCENCE.
10.	PORPHYRA.	SCURVY.
11.	EXANGIA.	VASCULAR DIVARICATION.
12.	GANGRÆNA.	GANGRENE.
13.	ULCUS,	ULCER.

GENUS I.

PLETHORA.

Plethora.

COMPLEXION FLORID; VEINS DISTENDED; UNDUE SENSE OF HEAT AND FULNESS; OPPRESSION OF THE HEAD, CHEST OR OTHER INTERNAL ORGANS.

GEN. I. Plethora hitherto generally neglected by nosologists.

PLETHORA is seldom ranked as a disease, and hence seldom treated of in a course of medical instruction. From what cause this omission proceeds I know not, nor is it worth while to inquire. That it is an important omission will be obvious to every student before he has been six months in practice; for there will probably be few affections on which he will be sooner or more frequently consulted. Yet the subject has not always been neglected by nosologists, for plethora, as a genus, occurs in the classifications both of Linnéus and Sagar.

General pathology.

In a state of health, the quantity of blood produced from the substances that constitute our common diet bears an exact proportion to the quantity demanded by the vascular system in its ordinary diameter, and the various secretions which are perpetually taking place in every part of the body. But the quantity of blood produced within a given period of time may vary; and the diameter of the blood-vessels, or the call of the different secernent organs may vary; yet, so long as a due balance is maintained, and the proportion of new-formed blood is answerable to the demand, the general health continues perfect or is little interfered with. Thus, a man exhausted and worn down by shipwreck, or by having

Gen. I. Plethora. Plethora.

lost his way in a desert, or who is just recovering from a fever, will devour double the food, and elaborate double the quantity of blood, in the course of four and twenty hours, to what he would have done in the ordinary wear of life; but the whole system demands this double exertion; the double supply is made use of, and the general harmony of the frame is as accurately maintained, as at any former period; there is no accumulation or plethora.

Example of an instinctive or remedial power of nature.

Further exemplified.

It should also be observed, that in this case the same remedial or instinctive power that stimulates the sanguific organs to the formation of a larger proportion of blood, stimulates also the blood-vessels to a diminution of their ordinary capacity; and lessens the activity of the secernents; and hence the difficulty to which the animal machine is reduced is also met another way; and a balance between the contained fluid, and the containing tubes, is often preserved as completely during the utmost degree of exhaustion, as in the fullest flow of healthy plenitude.

Morbid deviation from the ordinary rule of action:

We sometimes, however, meet with cases in which an increased supply of blood is fabricated when no such increase is wanted, and the vessels remain of their ordinary capacity. And we also, sometimes, meet with cases in which, from a peculiar diathesis, the capacity of the vessels is unduly contracted, while no change takes place in the ordinary supply of blood. It is evident that in both these contingencies there must be an equal disturbance of the balance between the substance contained and the substance containing, and that the measure of the former must be too large for the measure of the latter. In other words, there must be in both cases an excess of fluid or a plethora, though from very different, and what are usually regarded as opposite causes; and, hence, it has been distinguished by different names; that proceeding from an actual surplus of blood being denominated a plethora *ad molem*, or a plethora in respect to its general mass, or absolute quantity; and that proceeding from a diminished capacity of the vessels being

and its consequences: operating in the production of opposite effects: being a

Plethora ad molem: and a

denominated a plethora *ad spatium*, or a plethora in respect to the space to be occupied.

Gen. I. Plethora. Plethora. Plethora ad spatium.

Both causes sometimes coexistent.

It is possible, however, for both these causes of plethora to exist at the same time, and for the vessels to evince a contractile habit or diathesis, while the blood is produced in an inordinate proportion. And this, in truth, is by no means an uncommon state of the animal frame; for where the excess of blood is the result of a highly vigorous action or entony of the organs of sanguification, we often see proof of the same entony or highly vigorous action through the whole range of the vascular system, and indeed of every other part of the machine; the pulse is full, strong, and rebounding; the muscular fibres firm and energetic, the complexion florid, the whole figure strongly marked. We have here the sanguine temperament; and this kind of plethora has hence been called the SANGUINE PLETHORA.

How indicated.

Hence called Sanguine Plethora.

But we often meet with an inordinate formation of blood in a constitution where the vascular action is peculiary weak, instead of being peculiarly vigorous, the muscular fibres are relaxed instead of being firm, and the coats of the vessels readily give way, and become enlarged instead of being diminished in their diameter; and where instead of entony or excess of strength, there is considerable irritability or deficiency of strength in the organs of sanguification.

Yet, though the cause is different, the result is the same; the vessels, notwithstanding their facility of dilatation, at length become distended, and a plethora is produced which has been denominated a plethora *ad vires*; or a plethora as it respects the actual strength of the system. The pulse is here indeed full, but frequent and feeble; the vital actions are languid; the skin smooth and soft; the figure plump, but inexpressive; all which are symptoms of debility of the living power, or rather of that peculiar diathesis which has been distinguished by the name of the serous, phlegmatic, or pituitary temperament; and hence this sort of plethora has been commonly denominated SEROUS PLETHORA.

Plethora ad vires what?

How indicated.

Hence called Serous Plethora.

GEN. I. Plethora. Plethora.

We have, hence, a foundation for the two following very distinct species of this affection the names for which are derived from their proximate causes.

1. PLETHORA ENTONICA. SANGUINE PLETHORA.
2. ——— ATONICA. SEROUS PLETHORA.

SPECIES I.

PLETHORA ENTONICA.

Sanguine Plethora.

PULSE FULL, STRONG, REBOUNDING: MUSCULAR FIBRES FIRM AND VIGOROUS.

GEN. I. SPEC. I.

To be distinguished from obesity: and seldom found with it.

SANGUINE plethora is more common to men, serous to women. It is the disease of manhood, of the robust and athletic. Plethora of this kind must be distinguished from obesity; in effect, they are rarely found in conjunction, for the entony or excess of vigorous action is common to every part of the animal frame, and hence, though it is probable that a larger portion of animal oil is secreted than in many other conditions of the body, yet it is carried off by the activity of the absorbness, and there is no leisure for its accumulation in the cellular membrane. And hence persons labouring under sanguine plethora are rather muscular than fat, and their distended veins lie superficially and appear to peep through the skin.

Diagnostics.

In this state of the blood-vessels, slight excitements produce congestion in the larger vessels or organs. The head feels heavy and comatose; the sleep is disturbed by tumultuous dreams; the lungs labour in respiration, and the muscles feel a want of freedom or elasticity in exercise. If fever arise, it will assume the inflammatory type; and a slight excess in feasting or conviviality will endanger an apoplexy.

Gen. I.
Spec. I.
Plethora entonica.
Sanguine plethora.
Medical treatment.

The cure, however, is not in general accompanied with much difficulty; and far more easily effected in this species than in the ensuing: for the entonic power may readily be lowered by venesection and purgatives; and its disposition to return may commonly be prevented by the use of refrigerants, as nitre, or other neutral salts, and an adherence to a reducent diet and liberal exercise; at the same time it should be observed, that where the plethora depends upon a sanguineous temperament, or phlogistic diathesis, venesection, though rightly employed at first, should be repeated with great caution, as it will tend to generate in the system a periodical necessity for the same kind of depletion, and consequently promote the disease it is designed to cure.

SPECIES II.

PLETHORA ATONICA.

Serous Plethora.

PULSE FULL, FREQUENT, FEEBLE: VITAL ACTIONS LANGUID; SKIN SMOOTH AND SOFT; FIGURE PLUMP, BUT INEXPRESSIVE.

Gen. I.
Spec. II.

The general pathology we have already treated of: and the reasons given under the last species for the usual appearance of sanguine plethora in persons of a spare and slender make, will explain the plumpness of figure and glossiness of skin which so peculiarly mark the species before us. In the first, there is great and universal vigour and rapidity of action; the secretions are all hurried forward in their elaborations, and carried off as soon as produced. In the second, there is little vigour or activity of any kind, and whatever is eliminated is suffered to accumulate. Hence costiveness is a common

Diagnostics.

Gen. I. Spec. II. Plethora atonica. Serous plethora.

symptom; the ankles are cold and pituitous; and the animal oil, when once separated and deposited in the chambers of the cellular membrane, remains there, becomes augmented, and produces corpulency and sleekness. The inertness of the body is communicated to the mind; every exertion is a fatigue; and the mind thus participating in the inertness of the body, the countenance, though fair and rounded, is without expression, and often vacant.

Debility is always a source of irritability: and hence there is great irregularity, and a seeming fickleness in many of the symptoms by which this species of plethora is characterized, and the results to which it leads. The bowels, though usually quiescent and costive, are sometimes all of a sudden attacked with flatulent spasms, or a troublesome looseness. The appetite is languid and capricious; the heart teized with palpitations, the chest with dyspnœa and wheezing; the head is heavy and somnolent; the urine pale, small in quantity and discharged frequently.

Medical treatment.

In this species, as in the last, we are compelled to begin with cupping or the use of the lancet. But, though the distended and overflowing vessels demand an abstraction of blood, it should never be forgotten that the relief hereby afforded is only temporary; and that, as the disease is, in this case, an effect of debility, we are directly adding to the cause as often as we have recourse to the lancet. Our leading object should be to give tone to the relaxed fibres; and to take off the morbid tendency to the production of a surplus of blood by counteracting the irritability which gives rise to it. Our attack must be made upon the entire habit, which as far as possible should undergo a total change. The diet should be nutritious, but perfectly simple, and the meals less frequent or less abundant than usual; the sedentary life should give way to exercise at first easy and gentle, but by degrees more active, and of longer extent or duration. Tonics, as bitters, astringents and sea-bathing, may now be employed with advantage; and the muscular

Leading indication that of giving general tone:

fibres will become firmer as the cellular substance loses its bulk.

Gen. I. Spec. II. Plethora atonica. Serous plethora.

The whole, however, must be the work of time; for although in morals it is a wholesome principle that bad habits cannot too speedily be thrown off, it is a mischievous doctrine in medicine. Health being the middle term between excess and deficiency, every day is giving us a proof that where either of these extremes has become habitual, the system can only be let up or let down by slow degrees so as to reach and rest at the middle point with certainty, and without inconvenience. Professor Monro has furnished us with several very striking examples of this fact; and particularly among those who had acquired a habit of drinking very large quantities of spirituous potation. A man of this description who had broken both bones of one leg, and was put, for a more speedy recovery, upon a diet of milk and water and water-gruel, was hereby thrown into a low fever with an intermitting pulse, twitching tendons, and delirium; during which he got out of bed and kicked away the box in which his leg was confined. A by-stander and friend of the patient's of the same irregular habit, ventured to tell the professor that he would certainly kill him if he did not allow him ale and brandy; since, for several years antecedently, he had been accustomed to both these as his common drink; a little of each was, in consequence, permitted him; but the patient's friends did not tie him down to this little; for extending the grant of an inch to an ell, they instantly gave the man a Scot's quart of ale and a gill of brandy, which was his usual allowance for the evening, he slept well and sound; the next morning was free from delirium and fever; and, by a perseverance in the same regimen, obtained a speedy cure without the least accident *.

by a gradual process

Illustrated.

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* Edin. Med. Ess. Vol. v. Part II. Art. XLVI.

GENUS II.

HÆMORRHAGIA.

Hemorrhage.

FLUX OF BLOOD WITHOUT EXTERNAL VIOLENCE.

Gen. II. Term how employed by Cullen: but incorrectly, and with general disapprobation.

Profusions what?

THE term hæmorrhagia, or hemorrhage, is derived from the Greek *αἷμα*, "sanguis," and *ῥήσσω*, "rumpo." Dr. Cullen has adopted the same name for an order of diseases; but there are few parts of his arrangement that are more open to animadversion, and which in fact have been more animadverted upon than the present. The order of hemorrhages, or fluxes of blood, ranks in Dr. Cullen's system under the class pyrexiæ, or febrile diseases. Pyrexy, however, is only an accidental symptom in idiopathic hemorrhages of any kind, and has hence been omitted by all, or nearly all, other nosologists in their definitions: while Dr. Cullen himself has found it impossible to apply it to many hemorrhages, among which are all those that are called passive; and he has hence been obliged to transfer the whole of these to another part of his system, notwithstanding their natural connexion with the active, and to distinguish them by the feeble name of *profusions*, instead of by their own proper denomination.

Blood, from whatever organ it flows, may have two causes for its issue. The vessels may be ruptured by a morbid distention and impetus; or they may give way from debility and relaxation, their tunics breaking without any peculiar force urged against them, or their exhalents admitting the flow of red blood, instead of the more attenuate serum. To the former description of hemorrhages, Dr. Cullen has given the name of active; to the latter that of passive. The distinction is sufficiently clear; and, under the names already employed in the preceding genus of this system, will lay a foundation for the two following species:—

Gen. II.
Hæmorrhagia.
Hemorrhage.

1. HÆMORRHAGIA ENTONICA. ENTONIC HEMORRHAGE.
2. ——————— ATONICA. ATONIC HEMORRHAGE.

SPECIES I.

HÆMORRHAGIA ENTONICA.

Entonic Hemorrhage.

ACCOMPANIED WITH INCREASED VASCULAR ACTION: THE BLOOD FLORID AND TENACIOUS.

Gen. II.
Spec. 1.

As the outlets of the body are but few, and all of them communicate with numerous organs, we cannot always determine with strict accuracy from what particular part the discharge flows. We have, however, sufficient reason for the following varieties:—

α Narium.	Entonic bleeding at the nose.
β Hæmoptysis.	——— spitting of blood.
γ Hæmatemesis.	——— vomiting of blood.
δ Hæmaturia.	——— bloody urine.
ε Uterina.	——— uterine hemorrhage.
ζ Proctica.	——— anal hemorrhage.

General pathology.
Predisponent cause.

The great predisponent cause of active hemorrhage, wherever it makes its appearance, is plethora or congestion. A plethoric diathesis will, however, only predispose to a hemorrhage *somewhere* or *other;* and hence there must be a distinct local cause that fixes it upon one particular organ rather than upon another. The chief

Local cause.

Gen. II. Spec. I. Hæmorrhagia entonica. Entonic hemorrhage.

local cause is a greater degree of debility in the vessels of such organ than belongs to the vascular system generally. But there are other and more extensive causes that operate upon some organs, and which consist in an unequal distribution of the blood and its peculiar accumulation in some vessels rather than in others. Thus, some organs acquire developement and perfection sooner than others, of which the head, peculiarly large even in infancy, furnishes us with a striking example: and, in the promotion of such developement, the flow of the blood is directed with greater force and in greater abundance.

Hemorrhage from the nose whence? and why chiefly in young persons?

And hence, while the coats of the blood-vessels in this organ are yet tender, and destitute of that firmness which they derive from age, we have reason to expect hemorrhage as a frequent occurrence and particularly from the vessels of the nostrils; because there is in the nose, for the use of the olfactory sense, a considerable net-work of blood-vessels expanded on the internal surface of the nostrils, and covered only with thin and weak integuments. And, on this account, we see why young persons are so much more subject to bleedings from this organ than those in mature life.

Hæmoptysis whence? and why chiefly in mature life?

Hæmoptysis, or spitting of blood, takes place more commonly a few years later, and when the animal frame has acquired its full growth, and consequently the vascular system its full extent or longitude. Antecedently to this, the impetus and determination of blood are greater in the aorta and its extreme ramifications than in the pulmonary artery, because more of the vital fluid is demanded for the progressive elongation of the very numerous arteries that issue from the former: and, consequently, a greater tendency to plethora exists in this direction till the age of about fifteen or eighteen than in the direction of the lungs. Till this period of life, therefore, we have no reason to expect hemorrhage from the respiratory organs. When this term, however, has arrived, the bias is thrown on the other side; and the vessels of the corporeal and of the pulmonary circulation being equally perfected, the tendency to accumulation will be in the latter, in conse-

Gen. II. Spec. I. Hæmorrhagia entonica. Entonic hemorrhage.

quence of their shorter extent. This tendency will continue till about the age of thirty-five; which is exactly correspondent with the observation of Hippocrates, who has remarked that hæmoptysis commonly occurs between the age of fifteen and that of five-and-thirty. We have explained why it does not often occur before fifteen, but what is the reason of its seldom occurring after the latter period? Dr. Cullen has ingeniously explained it in the following manner. The experiments of Sir Clifton Wintingham, he observes, have shown that the density of the coats of the veins compared with that of the arteries is greater in young than in old animals; from which it may be presumed that the resistance to the passage of the blood from the arteries into the veins is greater in young animals than in old; and while this resistance continues, the plethoric state of the arteries must be perpetually kept up. The very action, however, of an increased pressure against the coats of the arteries gradually thickens and strengthens them, and renders them more capable of resistance; whence in time they come not only to be on a balance with those of the veins, but to prevail over them; a fact which is also established by the experiments just adverted to.

Why a rare occurrence after thirty-five.

After thirty-five, therefore, the constitutional balance becomes completely changed, and the veins instead of the arteries are chiefly subject to accumulation. The greatest congestion will usually, perhaps, be found in the vena portarum, in which the motion of the venous blood is slower than elsewhere; and such congestion alone will frequently act upon the neighbouring arteries, and induce what may be called a reflex plethora upon them in consequence of their inability of unloading themselves: and hence, the chief origin of hæmatemesis, anal hemorrhage, and various other hemorrhages from the abdominal and pelvic organs.

Whence hæmatemesis? anal hemorrhage?

and hemorrhages from other abdominal or pelvic organs.

All these organs, however, are exposed to hemorrhage from incidental causes, as well as that constitutional change which has a tendency to produce the disease vicariously.

Active hemorrhage frequently a result of incidental causes:

Gen. II. Spec. I. Hæmorrhagia entonica. Entonic hemorrhage.

as violent exertion external or internal:

Thus, hemorrhage in all of them is occasionally produced by violent exertion, as great muscular force; vehement anger, or other passions or emotions of the mind; severe vomiting, or coughing; suppressed evacuations of various kinds, especially hemorrhoids of long standing, catamenia, habitual ulcers, issues, or chronic eruptions of the skin*: as also by the wound of a leech swallowed accidentally†. But in this last case it is probable that the living principle of the stomach is in a state of weakness, as in all other cases in which exotic worms are found to continue alive under its action: since we know that this action when in full vigour is sufficient to destroy oysters, frogs, slugs, leeches, and various other cold-blooded animals in a short time. Hæmoptysis is also said by many writers to have been produced by leeches accidentally taken into the stomach by a draught of water‡. But it is probable that in this case there is a deception: and that the blood discharged by coughing from the trachea has first passed into it from the stomach and mouth.

suppressed evacuations.

shock of electricity:

wound of a leech in debilitated stomachs.

Local stimulants often occasional causes.

Local stimulants are also an occasional cause. Thus the vessels both of the kidneys and rectum have been excited to hemorrhage by an injudicious use of aloes, terebinthinate preparations, and pungent aliaceous sauces. And the former by cantharides, whether applied externally or internally: for Schenck and other writers have given examples of hæmaturia excited in irritable constitutions by vesicatories alone §.

Hemorrhage sometimes critical and salutary.

Occasionally, however, all the various kinds of hemorrhages before us have assumed a different character, and proved salutary and critical. Thus, cephalitis has often ceased suddenly on a free and sudden discharge of

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[*] Percival's Essays, II. p. 181.

[†] Galen. De Loc. Affect. Lib. IV. Cap. V.—Riverius, Observ. Med. Cent. IV. Obs. 26.

[‡] Galen. De Loc. Affect. Lib. IV. Cap. V.—Borelli, Cent. I. Obs. 24.

[§] Schenck, Lib. VII. Obs. 124. ex Langiò.—Hist. Mort. Uratislav. p. 58.

blood from the nostrils; pneumonitis, from what has been deemed an alarming hæmoptysis; visceral infarctions, from a liberal evacuation of the hemorrhoidal vessels; a jaundice has been carried off by a profuse hæmaturia *, and fevers of various kinds have instantly yielded to a spontaneous appearance of any of them.

GEN. II. SPEC. I. Hæmorrhagia entonica. Entonic hemorrhage.

Such hemorrhages, however, though salutary in their onset, must be cautiously watched; since, if not checked when they have accomplished their object, they are apt to pass into a chronic or periodic form. Hence many persons have monthly discharges from the rectum; others from the nostrils; others again, occasional or periodic, from the lungs; and a few from the stomach †. Tulpius gives a case of chronic hæmoptysis that continued for thirty years ‡; and others, instances of much longer duration §.

Apt to pass into a chronic form.

There is also another reason for an early attention to spontaneous hemorrhages; and that is, the profuseness of the discharge which sometimes takes place, and the alarming exhaustion which follows. Dr. Banyer, in the Philosophical Transactions ||, gives a case of this sort, in which the discharge was from the bladder; Büchner, another case from the same organ, in which it amounted to not less than four pounds ¶: and other writers bring examples of its having proved fatal.

Flow of blood often profuse.

The largest quantities, however, are usually lost from the nostrils. Ten, twelve, and upwards of twenty pounds have been known to flow away before the hemorrhage has ceased. Bartholin mentions a case of forty-eight pounds **, Rhodius another of eighteen pounds lost within thirty-six hours ††; and a respectable writer in the Leipsic ACTA ERUDITA, a third of not less

Largest quantities lost are generally from the nostrils.

Examples.

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* Schenck, Obs. Lib. III. Serm. II. N. 258.

† Rhodius, Cent. II. Obs. 64.—Ab Heer. Introduct. in Archiv. Archei.

‡ Lib. II. Cap. II.

§ N. Act. Nat. Cur. Vol. I. Obs. I.

|| Vol. XLII.

¶ Miscell. 1728. p. 1496.

** Anat. Renov. Lib. II. Cap. VI.

†† Cent. I. Obs. 90.

Gen. II. Spec. I. Hæmorrhagia entonica. Entonic hemorrhage.

than seventy-five pounds within ten days*; which is most probably nearly three times as much as the patient possessed in his entire body at the time the hemorrhage commenced. In the Ephemera of Natural Curiosities is a case in which the quantity indeed is not given, probably from the difficulty of taking an account of it, but which continued without cessation for six weeks †.

α H. entonica narium. Entonic bleeding at the nose. Precursive symptoms common: but not always to be met with. Occasional causes.

In ACTIVE HEMORRHAGES FROM THE NOSTRILS, the epistaxis of many writers, the discharge is usually preceded by some degree of local heat and itching; and occasionally by a flushing of the face, a throbbing of the temporal arteries, a ringing in the ears, or a pain or sense of weight and fulness in the head. Yet not unfrequently the blood issues suddenly without any of these precursors; for, as we have already observed, the arteries distributed over the schneiderian membrane are very numerous and superficial, and a very slight irritation is often sufficient to rupture them. That insolation or exposure to the direct rays of the sun, a cold in the head, or cold applied to the feet or hands, coughing, or sneezing, especially upon the use of sternutatories, an accidental blow upon the upper part of the nose or forehead, or a jar of the entire frame, as on stumbling, should be sufficient to produce this effect, can easily be conceived; and these, in truth, are the common occasional causes: but it is singular that it should follow, in some highly irritable idiosyncrasies, upon such very trivial excitements as have been noticed by many pathologists. Thus, Bruyerin ‡ gives an example in which the nostrils flowed with blood upon smelling at an apple; Rhodius, upon the smell of a rose §; and Blancard, upon the ringing of bells ||: and when we find the same effect produced by various emotions of the mind, as terror,

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* Act. Erudit. Lib. 1688. p. 205.

† Dec. I. Ann. III. Obs. 243.

‡ Bruyerinus De Re cibariâ. Lib. I. Cap. 24.

§ Rhodius, Cent. III. Obs. 99.

|| Blancard, Collect. Med. Phys. Cent. VI. Obs. 74.

GEN. II.
SPEC. I.
α H. entonica narium.
Entonic bleeding at the nose.

anger, and even a simple excitement of the imagination *, we may readily trace by what means the philosophers and poets of the eastern world, and even some of those of the western were led to regard the nose as the seat of mental irritation, the peculiar organ of heat, wrath, and anger; and discover how the same term אף (ap or aph) came to be employed among the Hebrews to signify both the organ and its effect, the nose and the passion of anger to which it was supposed to give rise.

Nostrils why regarded as the seat of mental irritation.

We have already observed that the quantity of blood discharged by a spontaneous hemorrhage from the nostrils is sometimes enormous. This, however, is a more common result of passive than of active hemorrhage; and is more usually found in advanced than in early life.

If it be evidently connected with entonic plethora, or accompanied with the local symptoms just enumerated, it will afford a more effectual relief than bleeding in any other way, and should not be restrained till it has answered its purpose. Even a small portion of blood, not amounting to more than a table-spoonful or two, when thus locally and spontaneously evacuated, has afforded, on some occasions, a wonderful freedom and elasticity to an oppressed and heavy head: and, when more copious, has probably prevented an apoplectic fit, as it has often formed a salutary crisis in inflammation of the brain, or fevers in which the brain has been much affected.

Medical treatment.
Often revellent or critical:
and should not be suddenly restrained.

But when these reasons do not exist, the bleeding should be checked by astringent applications. Cold is the ordinary application for this purpose, and it commonly succeeds without much trouble. Cold water may be sniffed up the nostrils, or thrown up with a syringe; but the exertion of sniffing, or even the impetus of the water alone, where a syringe is employed, sometimes proves an excitement that more than counterbalances

In other cases to be checked at once:
and by what means.

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* Rhodius, Cent. 1. Obs. 89.

Gen. II. Spec. I. α H. entonica narium. Entonic bleeding at the nose.

the frigorific effect. Independently of which there is an advantage in leaving the blood to coagulate on the ruptured orifice of the vessel, which these methods do not allow. By means of a syringe, however, we can throw up, when necessary, astringents of more power than cold water, as vinegar, or the sulphuric acid properly diluted, or a solution of sulphate of zinc, copper, iron, or lead, after which we should force up tents of lint moistened with the same, and particularly with extract of lead diluted with only an equal quantity of water, as high as we are able with a probe or small forceps, so as to form a tight compress: the styptic agarics can be rarely used to advantage. The face may, at the same time be frequently immersed in ice-water, or water artificially chilled to the freezing point; and the temples, or even the whole of the head, be surrounded with a band or napkin moistened with the same, and changed as soon as it acquires the warmth of the skin. When tents are used, they have sometimes been illined with moistened powder of charcoal, which of itself has proved an excellent styptic. Cold applied to the back will succeed, but often fails; it is more certain of success when applied to the genitals.

Emetics have occasionally been of service, and are recommended by Stoll[*]. The principle upon which they may be presumed to act will be noticed under hæmoptysis. The bleeding has sometimes been checked by a sudden fright[†], probably from the cold sweat that so often attends such an emotion: and Reidlin gives a case in which it was cured by sneezing[‡]; but this was probably a case of atonic hemorrhage, in which the spasmodic action might assist in corrugating the mouths of the bleeding vessels.

Internal astringents not often necessary.

It is rarely necessary or even proper in this variety of hemorrhage to employ any internal astringent or other tonic: but if this discharge should be excessive, and produce debility, the same plan may be resorted to as will be recommended under the ensuing species.

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[*] Rat. Med. Part. III. p. 21.

[†] Panarol. Pentecost. v. Obs. 27.

[‡] Linn. Med. Ann. I. Obs. 24.

Gen. II. Spec. I.

β H. entonica Hæmoptysis. Entonic spitting of blood.

In HÆMOPTYSIS OR SPITTING OF BLOOD, it is not always easy to determine from what vessel or even from what organ the bleeding proceeds: for the blood may issue from the posterior cavity of the nostrils, or from the fauces as well as from the lungs. If, however, from the first, it will cease upon bending the head forward or lying procumbent, and will probably flow from the nose: if from the second, we shall commonly be able to satisfy ourselves by inspection. Blood from the stomach is of a darker colour, thrown up by vomiting, and betrays an intermixture of food.

Not easy to determine from what quarter the blood flows.

Symptoms indicating its proceeding from the lungs:

If the hæmoptysis be produced from the lungs, and belong strictly to the present species, and more especially if it be a result of entonic plethora, the blood will be chiefly thrown up by coughing; and the discharge will be preceded by flushed cheeks, dyspnœa, and pain in the chest. There is usually, also, a sense of tickling about the fauces, which often descends considerably lower; Salmuth asserts that he has known it extend to the scrobiculus cordis [*]. These symptoms, moreover, indicate that the blood flows from a branch of the pulmonary rather than of the bronchial artery. The blood is here of a florid hue, and the hemorrhage sudden and often copious. If a branch of the bronchial artery give way, the flow of blood is usually much slower, and smaller in quantity: there are no precursive symptoms, the blood is rather hawked or spit up intermixed with saliva, and, from being longer in its ascent, is of a darker colour. From its lodgement, however, in the air-vesicles, it becomes a cause of irritation, and a frothy cough ensues, sometimes accompanied with a little increase of the pulse and other febrile symptoms, as a feeling of heat and some degree of pain in the breast, which subsides after the ejection, and returns if there be a fresh issue.

from branches of the pulmonary artery:

from branches of the bronchial artery.

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[*] Cent. III. Obs. 43.

Gen. II. Spec. I. β H. entonica Hæmoptysis. Entonic spitting of blood.

Prognostics; favourable: unfavourable.

If the structure of the lungs be sound, we have no reason to prognosticate danger. On the contrary it often affords great relief to a gorged liver, and has proved critical in obstructed menstruation. Excreted with the sputum it is frequently serviceable, as we have already observed, in cases of asthma, pleurisy, and peripneumony. But if it have been preceded by symptoms of phthisis, or a strumous diathesis, there is great reason for alarm; for we can have little hope that the ruptured vessel will heal kindly and speedily, and have much to fear from the fresh jets, by which the extravasated blood becomes deposited and forms a perpetual stimulus in an irritable organ.

Occasional causes.

The general pathology has been already laid down. The incidental causes are misformation of the chest; undue exertion of the respiratory muscles, whether in running, wrestling, singing, or blowing wind-instruments; excess in eating and drinking; or a violent cough. As a symptom or sequel, it occurs in wounds, phthisis, or the suppression of some accustomed discharge.

Medical treatment. Bleeding:

In active hemorrhage from the lungs, venesection is one of the most important steps towards a cure; and the blood should be drawn freely at once, rather than sparingly and repeatedly; though a second and even a third copious use of the lancet will often be found expedient.

Emetics: Drastic purgatives to be avoided.

Emetics have been recommended, but they are of doubtful effect. They augment the vascular volume by relaxing the capillaries; but they stimulate locally by the act of rejection. Drastic purgatives are avoided because of the straining; but the straining in vomition is greater and more direct.

Different effects of vomiting and nauseating.

Dr. Brian Robinson of Dublin, who was one of the most strenuous promoters of this mode of practice in his day, accounted for the benefit of emetics by the constriction which he conceived they produce upon the extreme vessels every where; but to act thus they should rather nauseate than vomit; for in nausea we have great vascular depression, and a cold and general collapse on the surface; while vomiting is known to rouse the system generally and determine towards the surface. Upon the

GEN. II. SPEC. I. β H. entonica Hæmoptysis. Entonic spitting of blood. Treatment. Vomiting has increased the hemorrhage.

recommendation of Dr. Robinson, Dr. Cullen followed the plan in several cases: "but in one instance the vomiting," says he, "increased the hemorrhage to a great and dangerous degree; and the possibility of such an accident again happening has prevented all my further trials of such a remedy*." Nauseating has on this account been preferred on the continent to full vomiting in hemorrhage from the stomach, and indeed various other organs as well as from the lungs; and ipecacuan in small doses has been generally preferred to the metallic salts, as more manageable; half a grain or even a quarter of a grain being given every quarter of an hour for many hours in succession †.

Mild cathartics and sedatives.

In general, however, we shall find it as successful and far less distressing to employ mild aperients and sedatives. The first, and particularly neutral salts, are alone of great benefit, and their action should be steadily maintained. Sedatives are of still higher importance, and especially those that reduce the tone of the circulation, as nitre and digitalis. The first, in about ten grains to a dose, should be given in iced water, and swallowed while dissolving; the dose being repeated every hour or two according to the urgency of the case. If there be much cough, it must be allayed by opium and blisters. Local astringents we cannot use, and general astringents are here manifestly counter-indicated, however useful in passive hemorrhage: though it should be recollected, that when an active hemorrhage from the lungs is profuse and obstinate, the vessels lose their tone and fall into a passive state.

γ H. entonica Hæmatemesis. Entonic vomiting of blood. Term how employed by the Greek writers.

In HÆMATEMESIS the blood is evacuated from the alimentary canal at either extremity, whether that of the mouth or of the anus: for the term is used thus extensively by the Greek writers. In both cases it is dis-

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[*] Mat. Med. Part. II. Ch. XIX. p. 470.

[†] Keck, Abhandlung, und Beobachtungen. Medinisches Wochenblatt. 1783. No. 49.

GEN. II. SPEC. I. γ H. entonica Hæmatemesis. Entonic vomiting of blood.

charged in active hemorrhage with a considerable expulsive effort; and the discharge is preceded by tensive pain about the stomach; and accompanied with anxiety and faintness.

Blood thrown up from the stomach how distinguished from that thrown up from the lungs.

The quantity discharged from the stomach is in most cases larger than what is discharged from the lungs, and of a deeper hue: it is also thrown up by the act of vomiting, and usually intermixed with some of the contents of the stomach. And hence, there is no great difficulty in determining as to the source of the hemorrhage. Hæmatemesis, however, is far more frequently a disease of atony than of entony, and hence chiefly belongs to the next species. Its usual exciting causes, when it occurs under an entonic character, are concussion or other external violence, as a shock of electricity*, some strong emotion of the mind, as rage or terror, vomiting, or pregnancy. It has also occasionally been found, and often affords relief, in suppressed catamenia.

Chiefly a disease of atony.

Usual causes when entonic.

The pathology we have already given; the blood may proceed from the spleen, the liver, the pancreas, the stomach itself, or the smaller intestines; and the mode of treatment should be as already advised for hæmoptysis.

δ H. entonica Hæmaturia. Entonic bloody urine.

In HÆMATURIA the blood is evacuted at the urethra; and the evacuation is preceded by pain in the region of the bladder or kidneys, and accompanied with faintness. The blood is sometimes intermixed with urine, but occasionally flows pure and uncombined: and in this last state the disease is called by Vogel stymatosis, and the bleeding is supposed to proceed from the bladder rather than from the kidneys; that from the latter being smaller in quantity, and remaining a longer time in the passages, and consequently of a darker colour. There is some ground for this opinion; for when the bladder is the seat affected, there is far more local pain and faintness, than where the affection is in the kidneys. Hippocrates, indeed, has observed, that where the blood flows pure, copiously, and suddenly, and without pain, it pro-

Precursory symptoms.

Stymatosis of Vogel.

Some ground for the distinction it imports.

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* Percival's Essays, Vol. II. p. 181.

GEN. II. SPEC. I. δ H. entonica Hæmaturia. Entonic bloody urine.

ceeds from the kidneys; but where it is small in quantity, and of a blackish colour, and accompanied with much heat or pain, or both, its source is the bladder. But this remark, instead of opposing, tends rather to corroborate the preceding; for according to both views the seat of disease is distinguished by the greater or less degree of uneasiness that attends the discharge; and this whether the quantity discharged be larger or smaller.

Not often an entonic affection.

It is not often, though sometimes, an entonic disease or an active hemorrhage. Its exciting cause is frequently a stone in the bladder; or a violent blow on the kidneys, or on the bladder, especially when the latter is full. It is also said by Schenck* and other writers to be occasionally produced by cantharides whether employed externally or internally; for vesicatories alone are accused of occasionally exciting this complaint in irritable constitutions†.

Medical treatment.

In connexion with the general course of treatment already recommended in the preceding varieties, the compound powder of ipecacuan may here be employed with great advantage; for the pain and irritation are often intolerably distressing, and on this account demulcent drinks are frequently found to produce considerable relief.

ε H. entonica uterina. Entonic uterine hæmorrhage. Often mistaken for profuse menstrual flux.

In UTERINE HEMORRHAGE the blood is discharged from the womb with a sense of weight in the loins, and of pressure upon the vagina. This is the menorrhagia of most of the nosologists, and is often, but very erroneously, described as an excess of the menstrual flux. It is in truth a real hemorrhage or issue of blood, instead of menstrual secretion, which is often entirely suppressed, though sometimes a small but inadequate portion is intermixed with the uterine bleeding: and hence Hoffman has properly denominated it uteri hæmorrhagia. It occurs both in an entonic and an atonic state of the vessels, and especially of the general system: and from the

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* Lib. VII. Obs. L. 24. ex Langiò,

† Hist. Mort. Uratislav. p. 58.

GEN. II. SPEC. I. ε H. entonica uterina. Entonic uterine hæmorrhage.

remarks offered under PLETHORA, it is not at all to be wondered at that hemorrhage should in both conditions take place from the uterus very frequently, and perhaps more so than from any other organ.

Ordinary cause and progress.

For reasons we shall have occasion to explain in a subsequent part of this work, the uterus, from the period of the completion of the female form, is stimulated, once in every lunation, to the secretion and elimination of a peculiar fluid, which exhibits the colour, though it is deficient in many of the properties of blood; and for this purpose the uterine arteries are, at such seasons, peculiarly turgid and irritable. There is hence always a tendency on such occasions to an hemorrhage in this quarter in females of a firm and robust texture, and of a plethoric habit. But if from cold or any other cause the uterine secernents do not at these seasons fulfil their office, and throw forth the proper fluid, the uterine arteries will be inordinately gorged; the regular stimulus will be greatly augmented; pain, tension, and spasm will extend over the loins; and the extremities of the vessels be ruptured, or their mouths give way by anastamosis; and a considerable hemorrhage be the consequence.

Occasionally produced by other causes.

This is the ordinary period in which uterine hemorrhage takes place; though it may occur during any part of the interval between the catamenial terms, upon any of the occasional causes that operate upon other organs, and form the preceding varieties: as it is also well known to occur at times, with great violence, during pregnancy and in child-bed.

Has occurred in new-born infants.

When we come to treat of diseases appertaining to the sexual organs, we shall have to notice some singular cases of precocity in female infants, and especially that of a regular menstruation. It is upon this principle alone that we can account for uterine hemorrhage in new-born infants; of which the medical records give several examples; and especially the Ephemerides of Natural Curiosities.

In suppressed menstruation uterine hemorrhage af-

Gen. II. Spec. I. ε H. entonica uterina. Entonic uterine hæmorrhage.

fords relief to the spasms and pains that harass the loins, and the head-ache and difficulty of breathing which have usually preceded the lumbar distress. But the discharge may be immoderate, and become habitual. And it is hence best to be upon our guard, and to use venesection as a substitute; and to prevent or diminish the spasmodic action by gentle aperients and the sedatives already recommended in hæmoptysis; after which the case will become a disease of suppressed menstruation alone, and must be treated according to the method recommended under that malady; for a restoration of the catamenial secretion is its natural cure. I may here, however, observe, that when the suppression of this secretion has been of some standing and an uterine hemorrhage has periodically taken its place, accompanied with distressing pains in the whole circle of the pelvic region, we can sometimes suddenly restore a healthy action to the organ by a plan of anticipation. For this purpose I have prescribed venesection about ten days before the return of the monthly paroxysm; and having thus taken off the plethoric impetus, I have, a few days afterwards, recommended the hip bath to be used in a tepid state, every night, and persevered in till the period of relapse; when I have often found that there has been neither tension nor spasm; that the loins have continued easy, and the hemorrhage has yielded to the natural secretion.

Sometimes serviceable, but apt to become habitual.

Treatment.

Cure by anticipation.

ζ H. entonica proctica. Entonic anal hæmorrhage.

In HEMORRHAGE STRICTLY ANAL the flux of blood issues chiefly from the hæmorrhoidal vessels; and as these are large, and but little supported by any surrounding organization, they readily give way both in an entonic and atonic state of the frame, and particularly in case of plethora, upon very slight excitements; as in straining to expel hardened feces, taking cold in the feet, or walking a little too far. Irritants introduced by the mouth have also proved a frequent cause of this variety of hemorrhage; as an injudicious use of aloes, terebinthinate preparations, or even pungent aliaceous sauces. The irritation of piles is also a very common cause; and

How produced.

Gen. II. Spec. I. ζ H. entonica proctica. Entonic anal hæmorrhage. Sometimes a symptom of piles: but not necessarily so.

hence by some writers anal hemorrhage is only treated of as a symptom of that variety of this last disease which is known by the name of bleeding piles. But this is highly incorrect; as anal hemorrhage often occurs, and very profusely, where no piles have ever been experienced.

Precursive symptoms.

This power of hemorrhage when active, as it is called, or in an entonic habit, is usually preceded by a sense of weight and pain within the rectum, and sometimes by a load in the head. And it has often, as already observed, proved critical and salutary, and carried off congestions from the abdominal viscera. It is however, peculiarly apt to become profuse, and to establish an order of recurrence; and hence must be overpowered by the reducent and sedative plan recommended in most of the preceding varieties, and particularly in that of hæmoptysis. The aperients employed, however, should here be peculiarly mild and alterant; and sulphur, which does not readily dissolve in the course of the intestinal canal, and often reaches the rectum in an unmixed state, is one of the best, and is often found strikingly serviceable. All stimulant foods, moreover, must be especially avoided; and the ordinary drink should be water, soda-water, or lemonade.

Curative process. Mild aperients. Sulphur.

Local astringents when unadviseable.

Here also we are able, as in the case of hemorrhage from the nose, to employ local astringents, though it would be improper to use those that act generally, so long as plethora or an entonic habit continues. The patient may sit in a bidet of ice-water, or water cooled artificially to the freezing point, or may use a cold hip-bath, and have injections of cold-water, or astringent lotions, as of alum, zinc, or even lead, thrown up the rectum; the latter of which should be in such proportion as to remain there for half an hour or an hour.

SPECIES II.

HÆMORRHAGIA ATONICA.

Atonic Hemorrhage.

ACCOMPANIED WITH GENERAL LAXITY OR DEBILITY; AND WEAK, VASCULAR ACTION; BLOOD ATTENUATE, AND OF A DILUTED RED.

Gen. II. Spec. II.

Though the effect in this species is the same as in the preceding, the proximate cause, as well as the more obvious signs, are directly opposite. The general pathology has been given in the introductory remarks to the genus, and the more common organs from which the hemorrhage proceeds are the same as already noticed under the preceding species; and hence the varieties of that may be regarded as those of the species before us.

How produced.

When plethora is the remote cause, which it often is, it is atonic plethora, or plethora of debility; but whatever has a tendency to loosen or enervate the tone of the solidum vivum, or living fibre, will lay a foundation for this kind of hemorrhage. It is hence a characteristic disease of advanced age, as entonic plethora is of youth and adult life; and often takes place in those whose vigour is reduced by meagre or innutritious food, close confinement without exercise in a foul and stagnant atmosphere, or immoderate indulgence in the pleasures of wine or sexual intercourse. Hence too its frequent occurrence, as a symptom, in tabes, atrophy, struma, scurvy, and low fevers.

Why a characteristic disease: of age and of debilitating powers.

The characters of the several varieties of this species, as distinguished from those of the preceding, are as follows:—

α H. atonica narium. Atonic bleeding from the nose.

In hemorrhage from the nostrils, the blood flows without heat or head-ache.

GEN. II. SPEC. II. ϛ H. atonica Hæmoptysis. Atonic spitting of blood.

In that from the RESPIRATORY ORGAN, it is usually produced without even the exertion of coughing, and is often accompanied with a scirrhous or calculous affection of the lungs; the countenance is pale and emaciated.

γ H. atonica Hæmatemesis. Atonic vomiting of blood.

In HEMORRHAGE FROM THE ALIMENTARY CANAL, the blood is discharged without tensive pain: though there must necessarily be an expulsive effort; and, from the inanition hereby produced, some degree of nausea and faintness.

δ H. atonica Hæmaturia. Atonic bloody urine. Occurs sometimes during coition.

When evacuated by the URETHRA, there is, for the same reason, faintness, but little or no previous pain. The most singular and severest examples of hemorrhages from the urethra are those that have occurred during coition; sometimes intermixed with semen, sometimes instead of it, and sometimes immediately after emission. The individuals have been generally persons of highly irritable and delicate habits; and who have weakened themselves by too free an indulgence in pleasures of this kind. Numerous instances of this sort of hemorrhage are given in the Collections of Medical Curiosities, and especially in several of the German Ephemerides.

ε H. atonica uteri. Atonic uterine hemorrhage.

There is little pain in ATONIC HEMORRHAGE FROM THE UTERUS: and it generally occurs at the natural cessation of the menstrual flux, or within a few years afterwards. As a concomitant, hemorrhage from this quarter is also frequently found in a scirrhous, cancerous, or other morbid states of the uterus, in whatever period of life these may occur; which, however, they do most usually after the age of forty or fifty.

ζ H. atonica proctica. Atonic anal hemorrhage.

ATONIC HEMORRHAGE FROM THE ANUS usually takes place spontaneously with little or no pain; but commonly with varices or congestions of the hemorrhoidal vessels, and is very apt to produce a habit of recurrence.

Medical treatment of atonic hemorrhage. Blood should be abstracted with caution.

In all these varieties venesection must be had recourse to sparingly; and never, unless where we have satisfactory evidence of atonic plethora or congestion. It may sometimes be requisite to use the lancet in nasal hemorrhage, for the head may feel oppressed and drowsy: and it will still more frequently be necessary in hemorrhage from the uterus; but the blood abstracted should rarely exceed seven or eight ounces; and in all other varieties, as a general rule, it will be better to withhold our hand, and to proceed at once with a tonic plan of treatment.

Gen. II. Spec. II. Hæmorrhagia atonica. Atonic hemorrhage. Treatment. Free use of astringents,

Into this plan we may, in the present species, freely admit the use of general astringents in conjunction with their local application, however objectionable in the preceding; for a laxity and inelasticity of the fibrous structure are among the chief symptoms we have to oppose: and hence the mineral acids and metallic salts may be had recourse to with great advantage along with bitters; and, with a few exceptions, we cannot well err in the selection. The preparations of iron may be rather too heating in hæmoptysis, and perhaps in all atonic hemorrhages accompanied with much irritability. One of its mildest and best forms is that of a subcarbonate; and perhaps the best mode of obtaining it in this form is by the celebrated composition of Dr. Griffiths. The myrrh is also in this preparation a useful article for the present purpose, and we shall rarely do better than employ it. In the London Pharmacopœia, it is given under the name of mistura ferri composita.

and other tonics.

Opium how far useful.

From the manifest power of opium to restrain most evacuations, it has often been employed in hemorrhages. It does not appear, however, to have any direct effect in checking the discharge; and in entonic hemorrhages, and especially when employed early, has been highly mischievous. But where in hæmoptysis there is a perpetual cough from irritation, or in uterine hemorrhages a frequent recurrence of spasmodic pains, it has been tried with considerable success. And the same remark will apply to hyoscyamus, and various other narcotics, which seem to be only useful on the same account.

Cinchona where most serviceable.

Cinchona, which is peculiarly objectionable in the preceding species, may here be had recourse to with considerable promise. It seems, however, to be chiefly serviceable in uterine hemorrhage, where the disease depends upon a laxity of the extremities of the vessels, which are therefore readily opened by every irritation

Gen. II. Spec. II. Hæmorrhagia atonica. Atonic hemorrhage. Treatment.

applied to the system or to the diseased part. Whether in this case it acts altogether as a bitter, as supposed by Dr. Cullen, or partly also as an astringent, it may be difficult to determine; but the question is not of importance.

For other general roborants to which it may be necessary to have recourse, the reader may turn to the treatment of LIMOSIS *dyspepsia* *, or indigestion; and he may govern the patient's diet and regimen by the general pla there laid down.

Local astringents and refrigerants.

The local astringents and refrigerants, already recommended under the former species, may be here employed with even less reserve: and when the bleeding has become chronic, which it is far more likely to do than in entonic hemorrhage, or has been so profuse as very considerably to exhaust the system, a little wine or some other cordial should be administered as soon as we are consulted: for, however small the vessel that is ruptured, its orifice is incapable of contracting from a total loss of tone: and hence a diffusible stimulus gives it the irritation it stands in need of, and forms a salutary constringent. A striking case of this kind has already been given in treating of accidental hemorrhages from extracting teeth †: and it is only a few weeks ago since the author was requested to attend in a similar hemorrhage from the nose. The patient was a lady of about fifty years of age, of slender and delicate frame, who had for some years ceased to menstruate. The bleeding had continued incessantly for three or four days, during which she had been restrained to a very low diet, and allowed nothing but toast and water for her common drink. She was faint, felt sick, and had a feeble pulse, and must have lost many pounds of blood, though no exact measure had been taken. I gave her instantly a free draught of negus made with port wine, prescribed camphor mixture with the aromatic spirit of ammonia, had the nostrils syringed

Stimulants in what way useful.

Illustrated.

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* Class I. Ord. I. Vol. I. p. 162. 176.

† Vol. I. p. 45.

Treatment.

with equal parts of tincture of catechu and water, and applied a neckerchief wetted with cold water round the temples, directing it to be renewed every ten minutes. In half an hour the hemorrhage ceased, and on the ensuing day I found no other symptom than weakness, for which a nutritious but inirritant regimen was prescribed. A few days afterwards, the hemorrhage returned from sneezing or some other incidental stimulus, and was restrained, as I was told, for I did not see her, by a recurrence to the same plan. I recommended, however, carriage exercise, and an excursion to the sea-coast, which has been complied with, and there has been no recurrence of the disease.

Further exemplified.

To effect the same intention, I have occasionally advised cardiacs combined with astringents in hæmatemesis, where the discharge of blood has been profuse, and has continued for some days, and the patient has become considerably exhausted: and I do not recollect an instance in which the plan has proved unfriendly. In like manner, in very great faintness or deliquium produced by a copious and protracted hemorrhage from the uterus, I have had the vagina injected with equal parts of port wine and water acidulated with sulphuric acid, and have found it equally successful.

Subacetate of lead.

The subacetate of lead is also a preparation which in all such cases ought to be tried internally. It was at one time greatly out of favour from the writings of Sir George Baker and the concurrent opinion of Dr. Heberden. Of the mischievous effects of various preparations of this metal when employed internally, the former has given numerous examples, and concludes with the following corollary: "that lead taken into the stomach is a poison; I do not say ex proprietate naturæ et totâ substantiâ; but which is capable of doing much more hurt than good to the generality of men in all the known ways of using it: and, consequently, that it cannot be avoided with too much caution *." In corrobation of which Dr.

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* Med. Transact. Vol. I. p. 311.

Gen. II. Spec. II. Hæmorrhagia atonica. Atonic hemorrhage. Treatment. Its evils corrected by opium, as proposed by Reynolds:

Heberden tells us that its good effects are by no means so certain as its mischief; and in most cases would be far overbalanced by it. In the form of a sabacetate, however, all its evils seem to be subdued by a combination with opium; for the first distinct knowledge of which the medical world is indebted to the penetration and judgment of Dr. Reynolds, who tried it, in this state of union, in various cases with the most perfect success, and without the least unfavourable symptom whatever, whether of pain or even costiveness. He also employed with equal benefit the old tinctura saturnina, and the sugar of lead; of the former, giving eighteen drops with three drops of laudanum to a dose, and repeating the dose every four hours in a little barley-water; of the latter, giving one grain with three drops of laudanum mixed into a pill with conserve of roses; to be repeated every six hours. And under both forms he employed these materials with great and unalloyed advantages in hemorrhages of most sorts, especially uterine, pulmonary, and nasal *.

and since by Latham:

Dr. Latham † has since confirmed this practice of Dr. Reynolds in its fullest degree, and even extended its range; and so little inconvenience has he found from the use of the superacetate that he has employed it "in doses of a grain three times a-day for six, eight, and ten weeks successively; usually, but not always, combining it with opium or conium; without any other precaution than desiring the patients to obviate any costiveness by oleum ricini or confectio sennæ." He has occasionally given two grains of the superacetate as an evening dose; once, in consultation with Dr. Reynolds, five grains; and mentions another case in which he was concerned where ten grains a-day were taken without any inconvenience. By a mistake for sugar, a young woman, respecting whom he was consulted, swallowed at one time about two drachms of it, yet without any serious evil: the fauces

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* Med. Transact. Vol. III. Art. XIII.

† Vol. V. Art. XXI.

GEN. II. SPEC. II. Hæmorrhagia atonica. Atonic hemorrhage. Treatment.

and esophagus were considerably constringed, and this seems to have been the chief mischief; for the bowels were opened by oleum ricini and other purgatives in the course of the day, and the patient was not at all worse for the accident on the ensuing morning.

who has still farther extended its use.

Emboldened by these facts, Dr. Latham has employed the same medicine in other diseases in which irritant astringents and tonics seem requisite, as in colliquative diarrhœas and hectic perspirations, and more especially in that semipurulent expectoration which too often terminates in pulmonary ulceration and consumption; and, as he confidently assures us, with great advantage. And he hence concludes that whatever deleterious properties may appertain to lead in some of its salts and oxydes, nothing pernicious exists in its superacetate; in the process for which he conceives it either to be more completely freed from arsenical or other poisonous minerals than in its other forms, or rendered innocuous by the addition of the acetic acid.

It only remains to be added, that where entonic hemorrhage has occurred so profusely, or has continued so long as to reduce the system to an atonic state, it then becomes a disease of debility, and is to be treated as though originating under the present species.

GENUS III.

MARASMUS.

Emaciation.

GENERAL EXTENUATION OF THE BODY WITH DEBILITY.

Gen. III. Origin and use of the term in its ordinary scope.

Marasmus is a Greek term, derived from μαραίνω, "marcesco," "marcescere reddo." It was long ago used collectively to comprehend atrophy, tabes, and phthisis; and in employing it therefore in the present system as a generic name, we only restore it to its earlier sense. The generic character is common to all these subdivisions; for each is distinguished by a general emaciation of the frame accompanied with debility, and consequently forms a species to marasmus as a genus.

May be extended, and embrace another species.

With these species, the reader, however, will find a fourth united upon a high authority, with which I fully coincide, and to which I shall presently advert. Under the name of climacteric marasmus it is designed to embody that extraordinary decline of all the corporeal powers, which, before the system falls a prey to confirmed old age, sometimes makes its appearance in advanced life without any sufficiently ostensible cause, and is occasionally succeeded by a renovation of health and vigour, though it more generally precipitates the patient into the grave.

Extenuation or leanness how distinguished from emaciation.

Extenuation or leanness is not necessarily a disease; for many persons who are peculiarly lean are peculiarly healthy; while some there are who take pains to fall away in flesh that they may increase in health and become stronger. But if an individual grow weaker as he grows leaner, it affords a full proof that he is under a morbid influence; and it is this influence, this conjunction of extenuation with debility, as noticed in the definition, that is imported by the term MARASMUS, and its synonym EMACIATION.

Gen. III. Marasmus. Emaciation.

It is curious to observe how much more easily the body wastes under a disease of some organs than of others: and it would be a subject of no small moment to inquire into the cause of this, and to draw up a scale of organs effecting this change from the lowest to the highest degree. Dr. Pemberton, in a work of considerable merit, published many years ago, threw out some valuable hints upon this subject, which it is to to be lamented that he has not since followed up to a fuller extent. The following passage is well worthy of notice, and aptly illustrative of what is here intended. "Let us take," says he, "the two cases of a diseased state of the mesenteric glands, and a diseased or scrophulous affection of the breast. In the former we shall find there is a great emaciation; in the latter, none at all.—In an ulceration of the small intestines, great emaciation takes place; in scirrhus of the rectum, none.—In a disease of the gall-bladder, which is subservient to the liver, the bulk of the body is rapidly diminished; but in a disease of the urinary bladder, which is subservient to the kidneys, scarcely any diminution of bulk is to be perceived. In an abscess of the liver, the body becomes much emaciated; but in an abscess of the kidneys, the bulk is not diminished.

Waste from diseases of some organs greater than from those of others; as particularly noticed by Pemberton.

Exemplification.

"If we examine into the function of those parts, the diseases of which do or do not occasion emaciation, we may perhaps be led to the true cause of this difference of their effect on the bulk. In order, however, to understand more clearly how the functions of these parts bear relation to each other, it may be necessary to premise that the glands of the body are divided into those which secrete a fluid from the blood for the use of the system, and those which secrete a fluid to be discharged from it. The former may be termed glands of supply; the latter glands of waste.

Cause of this difference explained.

"The smaller intestines, in consideration of the great number of absorbents with which they are provided for

Glands of supply what? Glands of waste what?

Gen. III. Marasmus. Emaciation.

the repair of the system, may be considered as performing the office of glands of supply. Large intestines, on the contrary, may be considered as performing the office of glands of waste: insomuch as they are furnished very scantily with absorbents, and abundantly with a set of glands which secrete or withdraw from the system a fluid which serves to lubricate the canal for the passage of the feces, and which itself, together with the feces, is destined to be discharged from the system. The glands which secrete a fluid to be employed in the system, as well as the glands of direct supply, may be considered the liver, the pancreas, the mesenteric glands, perhaps the stomach, and the small intestines; and the glands of waste are the kidneys, breasts, exhalant arteries, and the larger intestines."

This explanation how far applicable to the species before us:

The first set are, in fact, the general assemblage of the chylific organs; and it is upon their direct or indirect inability to carry into execution their proper function, that the first of the species we are now about to enter upon, that of ATROPHY, is founded in all its varieties. How far these remarks will apply to the other species of the present genus is not quite so clear. The seat of the second and third may be doubtful, perhaps variable; that of PHTHISIS, or the fourth, admits of no debate. Are the lungs to be regarded as an organ of waste or of supply? The question may be answered in opposite ways, according to the hypothesis adopted respecting the doctrine of respiration. They throw off carbonic acid gass. Do they introduce oxygene or any other vital gass into the circulating system? As an organ of waste, we cannot, upon the principle here laid down, account for the emaciation which flows from a diseased condition of them. If it can be substantiated that they are an organ of supply, they confirm and extend the principle. Will this principle, moreover, apply in dropsy, in which there is even more emaciation than in phthisis? The subject is worth enucleating; but we have not space for it, and must proceed to arrange the four species that appertain to the genus before us:—

particularly to phthisis.

GEN. III. Marasmus. Emaciation.

1.	MARASMUS ATROPHIA.	ATROPHY.
2.	———— CLIMACTERICUS.	DECAY OF NATURE.
3.	———— TABES.	DECLINE.
4.	———— PHTHISIS.	CONSUMPTION.

Arrangements of other nosologists.

The three species how specifically distinguished.

Objection of Cullen;

replied to.

All these follow in regular order, as genera or species in most of the nosological arrangements, and are set down as subdivisions of macies or marasmus. By Dr. Cullen, phthisis is regarded as a mere sequel of hæmoptysis, upon which we shall have to observe in its proper place: while atrophia and tabes are given as distinct diseases under the ordinary head, only that for macies or marasmus he employs the term marcores as an ordinal term. The common distinguishing marks are, that atrophy is emaciation without hectic fever; tabes, emaciation with hectic fever; and phthisis, emaciation and hectic fever coupled with pulmonary disease. And such, with the exception of phthisis, is the distinction continued by Dr. Cullen in his Synopsis. But in his Practice of Physic he informs us that his views upon this subject had undergone a change, not only in respect to the subdivisions or varieties of these two diseases, but as to the diseases themselves. "I doubt," says he, "if ever the distinction of TABES and ATROPHIA, attempted in the Nosology, will properly apply; as I think there are certain diseases of the same nature, which sometimes appear with, and sometimes without fever *." This is written in the spirit of candour that so peculiarly characterizes this great man. But I cannot thus readily consent to relinquish a distinction which has received the sanction of so many observant pathologists, and which appears to me to have a sufficient foundation. It is difficult undoubtedly to assign a proper place to all the varieties, or subdivisions of these species; but this is a difficulty common to many other diseases equally; for we perceive fevers, nervous affections, and those of the digestive

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* Vol. IV. Part III. Book I. Sect. MDCXVIII.

Gen. III. Marasmus. Emaciation.

organs, perpetually running into each other in different varieties, while we find it convenient to arrange and describe them as distinct diseases notwithstanding. And, with the caution attempted to be exercised in respect to the species before us, I trust that the reader will not discern a greater transgression of boundary in the present than in various other cases of general allowance.

SPECIES I.

MARASMUS ATROPHIA.

Atrophy.

COMPLEXION PALE, OFTEN SQUALID: SKIN DRY AND WRINKLED: MUSCLES SHRUNK AND INELASTIC: LITTLE OR NO FEVER.

Gen. III. Spec. I. Origin and meaning of the specific term.

The specific is a Greek term deduced from α, privativa, and τρέφω, "nutrio," and is literally, therefore, INNUTRITION: a designation peculiarly significant, as the disease in all its forms or varieties seems to be dependent on a defect in the quantity, quality, or application of the nutrient part of the blood: and thus lays a foundation for the three following varieties:

α Inopiæ. Atrophy of want.	Blood innutritious from scarcity or pravity of food.
β Profusionis. Atrophy of waste.	Blood deprived of nutrition by profuse evacuations.
γ Debilitatis. Atrophy of debility.	Nutrition not sufficiently introduced into the blood by the chylific organs, or not sufficiently separated from it by the assimilating.

Gen. III. Spec. I. α M. Atrophia inopiæ. Atrophy of want. Generic pathology.

In order that the body should maintain its proper strength and plumpness, it is necessary that the digestive organs should be supplied with a proportion of food adequate to the perpetual wear of its respective parts: for this wear, as we all know, produces a waste; and hence the emaciation sustained by those who suffer from famine, in which there is no food introduced into the stomach, or from a meagre or unwholesome diet, in which the quantity introduced is below the ordinary demand. It is this condition that forms the first of the subdivisions or varieties, the ATROPHY OF WANT, under which the species before us is contemplated in the present arrangement.

ϐ M. Atrophia profusionis. Atrophy of waste. Pathological explanation continued.

But the ordinary demand may not be sufficient for the body, or some part of it may be in a state of inordinate wear and waste, as in very severe and protracted labour, in which the supply is rapidly carried off by profuse perspiration, or in rupturing or puncturing a large artery, in which the same effect is produced by a profuse hemorrhage. Any other extreme or chronic evacuation may prove equally mischievous, as an excessive secretion from the bowels, from the vagina, from the salivary glands, from the breasts; as where a delicate wet-nurse suckles two strong infants. And hence the origin of the second of the above varieties, or the ATROPHY OF WASTE.

Excessive expenditure supplied by proportional recruit.

Now, in all these cases, whereever the system is in possession of an ordinary portion of health, there is a strong effort made by the digestive powers to recruit the excessive expenditure by an additional elaboration of nutriment; and the instinctive effort runs through the entire chain of action to the utmost reach of the assimilating powers, or those secernents with which every organ is furnished to supply itself with a succession of like matter from the common pabulum of the blood. Hence the stomach is always in a state of hunger, as in the case of famine, profuse loss of blood, or recovery from fever; all the chylific organs secrete an unusual quantity of resolvent juices, an almost incredible quantity

Gen. III. Spec. I. β M. Atrophia profusionis. Atrophy of waste.

of food is demanded, and is chymified, chylified, and absorbed almost as soon as it enters the stomach; the heart beats quicker, the circulation is increased, and the new and unripe blood is hurried forwards to the lungs, which more rapidly expand themselves for the purpose, to be completed by the process of ventilation: in which state it is as rapidly laid hold of by the assimilating powers of every organ it seems to fly to, and almost instantly converted into its own substance. Such is the wonderful sympathy that pervades the entire frame; and that runs more particularly through that extensive chain of action which commences with the digestive and reaches to the assimilating organs, constituting its two extremities.

While this continues there is no extenuation: when otherwise, the present variety is produced.

So long as the surplus of supply is equal to the surplus of expenditure, no perceptible degree of waste ensues; but the greater the demand the greater the labour, and the turmoil is too violent to be long persevered in. The excited organs must have rest, or their action will by degrees become feeble and inefficient. And if this take place while the waste is still continuing, emaciation will be a necessary consequence even in the midst of the greatest abundance: and we hence obtain an explanation of the variety of emaciation before us.

γ M. Atrophia debilitatis. Atrophy of debility. Pathological explanation continued.

Thus far we have contemplated the animal frame in a firm and healthy constitution: and have supposed a general harmony of action pervading every link of the extensive chain of nutrition from the digestive organs to the assimilating powers. But we do not always find it in this condition; and occasionally perceive, or think we perceive, that this necessary harmony is intercepted in some part or other of its tenor: that the digestive powers, or some of them, do not perform their trust as they should do: or that the assimilating powers, or some of them, exhibit a like default; or that the blood is not sufficiently elaborated in its course, or becomes loaded with some peculiar acrimony. And hence another cause, or rather an assemblage of other causes, competent to the disease before.

Illustration of the causes of atony from debility.

Gen. III. Spec. I. γ M. Atrophia debilitatis. Atrophy of debility.

This variety very complex.

It is from the one or the other of these sources that we are in most, perhaps in all, cases to derive the third modification of this disease, which is here distinguished, for want of a better term, by that of ATROPHY OF DEBILITY. The disease under this form is often very complex, and it is difficult to trace out what link in the great chain of action has first given way. Most probably, indeed, it is sometimes one link, and sometimes another. But from the sympathy which so strikingly pervades the whole, we see at once how easy it is for an unsoundness in one quarter to extend its influence to another, till the disease becomes general to the system. Yet I am much disposed to think that the atrophy so conspicuous in feeble habits, and the feeblest periods of life, as infancy and old age, commences most usually at the one or the other end of the chain, and immediately operates by sympathy on its opposite. This remark is in consonance with a very common law of life, by which impressions are more powerfully and more readily communicated from one extreme of an organ to another, than they are to any of the intermediate points. It is hence the will operates instantly on the fingers, the stomach on the capillaries of the skin; and that the irritation produced by a stone in the bladder is felt chiefly in the glans penis. And hence the close correspondence which we have already seen prevail between these two extremities of the nutritive function in the case of want and hunger.

Often extended from a point to the whole system.

One extremity of a chain of organs peculiarly sympathetic with another.

Illustrated.

Where atrophy is connected with a morbid state of the digestive organs, we have a little light thrown on the nature of the disease, but not much. For first, this indigestion does not necessarily produce this effect, since it is no uncommon thing for dyspeptic patients to become plethoric, and gain, instead of lose, in bulk of body. And next, the morbid state of these organs may be a secondary instead of a primary affection, and be dependent upon a general hebetude or some other unsound condition of the assimilating powers, constituting the other end of the chain; and hence exercising a stronger

How the organs become primarily affected not always manifest.

Gen. III. Spec. I. γ M. Atrophia debilitatis. Atrophy of debility.

sympathy over them than over any intermediate organs whatever: as the digestive organs themselves, if the disease should have originated in them, may exercise a like sympathy over the assimilating powers, and hence produce that general extenuation which, as we have just observed, is not a necessary consequence of dyspepsy. It is at least put, I think, beyond a doubt, that more than one set of organs is connected in the atrophy of debility.

Symptoms of infantine or puerile atrophy.

Where this atrophy takes place in infants at the breast or young children, it is ushered in by a flaccidity of the flesh, a paleness of the countenance, sometimes alternating with flushes, a bloated prominence of the belly, irregularity of the bowels, pendulousness of the lower limbs, general sluggishness, and debility, and, where walking has been acquired, a disinclination to motion, with fretfulness in the day, and restlessness at night.

There is at first no perceptible fever, no cough or difficulty of breathing: but if the disease continue, all these will appear as the result of general irritation, and the skin will become dry and heated, and be covered over with ecthyma, impetigo, or some other squallid eruption. The breath is generally offensive, the urine varies in colour and quantity; and in infants at the breast, the stools are often ash-coloured or lienteric, or greenish, loose, and griping. The appetite varies; in some cases it fails, in others it is insatiable.

In infancy the remote cause often doubtful.

Where these symptoms, or the greater part of them occur to an infant at the breast, it becomes us, in the first place, to be particularly attentive to the manner in which it has been nursed, in respect to cleanliness, purity of air, warmth, and exercise: we have next to turn our attention to the nurse's milk; and afterwards to an examination whether the infant is breeding teeth, or has worms, or there be any scrophulous taint in the blood. For the last we have no immediate remedy; the rest we must correct as we find occasion. And if we have no reason to be satisfied upon any of these points, it may still be adviseable to change the milk. It is not easy to detect all the peculiarities of milk that may render it incapable of affording full nutrition: and there is reason to believe that one infant may pine away on what proves a healthy breast to another. I have given this advice in some dilemmas, and have often found a wonderful improvement on its being followed.

In chidren often less doubtful.

In children on their feet, who are confined to the filth and suffocating air of a narrow cell, the common habitation of a crowding family, from Sunday morning to Saturday night; or who are pressed into the service of a large manufactory, and have learnt to become a part of its machinery before they have learnt their mother-tongue; there is no difficulty in accounting for the atrophy that so often prevails amongst them. The appetite does not here so much fail as the general strength; their meals are, perhaps, doled out at the allotted hours by weight and measure; but still they are falling victims to emaciation; and are affording proof that air and exercise are of as much importance as food itself; that there are other organs than those of digestion upon which the emaciation must depend: and that, unless the supply furnished by the food to the blood-vessels be sufficiently oxygenized by ventilation, and coagulated by exercise, the blood itself, however pure from all incidental acrimony or hereditary taint, will never stimulate the secernents of the various organs to which it travels, to a proper separation of its constituent principles, and a conversion to their own substance.

Proximate cause may hence be reasonably conjectured in most cases.

In all these cases, therefore, the proximate cause seems to be lodged principally in the assimilating powers of the system; and whenever the digestive organs grow infirm also, it is rather by sympathy with the former than by any primary affection of their own.

Atrophia lateralis of Sauvages, what?

There is a singular case of atrophy quoted by Sauvages, to which he has given the name of *lateralis*, and which unquestionably belongs to this variety. It occurred in a young child, and took possession of just one half the body; the left side, from the axilla to the heel, being so completely wasted that the bones seemed only

Gen. III. Spec. I. γ M. Atrophia debilitatis. Atrophy of debility.

to be covered with skin, while the right side was fat. Under the influence of topical antispasmodics, and sudorifics continued *for seven years*, the writer of the account tells us that, he *began* to get better—"melius habere cœpit *."

Symptoms of atrophy in old age.

In the atrophy of debility common to old age, the cellular membrane, that is the part containing as well as the parts contained, seems rather to shrivel away, in many cases to be carried away by absorption, and the muscular fibres to become dried up and rigid rather than loose and flabby. In this case the assimilating powers seem to have done their duty to the last, and like an empty stomach when loaded with gastric juice in a moment of sudden death, to have preyed upon and devoured themselves: for it is probable that more than half the bulk of the muscles and of the parenchyma of many of the organs is carried off in the same manner. Here therefore we are to look for the proximate cause of the disease towards the other end of the chain, or among the chylific viscera. And we shall not in general look in vain. Not, indeed, that we shall always, or even commonly, find it in the stomach or in the liver, for the appetite may not fail, though its demand is but small and it is easily satisfied; and probably digests what is introduced into it. Yet here the greater part of the food rests; or rather it passes through the intestines and very little into the lacteals, insomuch that many of our most celebrated anatomists have thought, as I have already had occasion to observe †, that the mesenteric glands of old people become obliterated; while Ruysch contended that mankind pass the latter part of their lives without lacteals, and that he himself was doing so at the time of writing.

Proximate cause explained.

General mode of treatment.

The mode of treatment needs not detain us. Where the disease depends upon a want of wholesome food, or of food of any kind, the cure is obvious: where upon pro-

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* Nos. Med. Cl. x. Ord. I. Ex Collect. Acad. Tom. III. p. 693.

† Vol. I. p. 419. Parabysma Mesentericum.

Gen. III. Spec. I. Marasmus Atropia. Atrophy. Treatment.

fuse evacuations, it falls within the precincts of some other disease, and is to be governed by its remedies. And where the cause is an infirm condition of any part of the chain of nutritive functions, from the chylific to the assimilating organs, the same tonic course of medicine that may be adviseable in the one case will be equally adviseable in the other. The bowels should be kept in a state of regularity; mercurial alterants may sometimes be required, though less frequently than under one or two varieties of tabes; the bitters and astringents enumerated under DYSPEPSY may be had recourse to, according to the peculiarity of the case; and cleanliness, fresh air, exercise, and cold-bathing will complete the rest. The atrophy of old age is to be met by the richest foods, wine, and the warmth of another person sleeping in the same bed.

SPECIES II.

MARASMUS CLIMACTERICUS.

Decay of Nature. Climacteric Disease.

GENERAL DECLINE OF BULK AND STRENGTH, WITH OCCASIONAL RENOVATION, AT THE AGE OF SENESCENCE, WITHOUT ANY MANIFEST CAUSE.

Gen. III. Spec. II. Ground-work derived from Sir H. Halford: and the species new to nosological classification.

For the ground-work of this species of marasmus I am entirely indebted to Sir Henry Halford's elegant and perspicuous description of it in the Medical Transactions. The disease has hitherto never appeared in any nosological arrangement, but it has characters sufficiently distinct and striking for a separate species. In several of its features it bears a strong resemblance to the marasmus or atrophy of old age described under the preceding species: but it differs essentially in the

Gen. III. Spec. II. Marasmus climactericus. Decay of nature. Climacteric disease. Pathology.

instances which it affords of a complete rally and recovery: and if the train of reasoning about to be employed in developing its physiology prove correct, it will be found to differ also in its chief seat and proximate cause.

The ordinary duration of life seems to have undergone little or no change from the Mosaic age, in which as in the present day it varied from threescore-and-ten to fourscore years. In passing through this term, however, we meet with particular epochs at which the body is peculiarly affected, and suffers a considerable alteration.

Climacterics of the Greek pathologists.

These epochs the Greek physiologists contemplated as five; and, from the word climax (κλίμαξ), which signifies a gradation, they denominated them climacterics. They begin with the seventh year, which forms the first climacteric; and are afterwards regulated by a multiplication of the figures three, seven, and nine, into each other; as, the twenty-first year being the result of three times seven; the forty-ninth, produced by seven times seven; the sixty-third, or nine times seven; and the eighty-first, or nine times nine. A more perfect scale might perhaps have been laid down; but the general principle is well founded; and it is not worth while to correct it. The two last were called grand climacterics, or climacterics emphatically so denominated, as being those in which the life of man was supposed to have consummated itself; and beyond which nothing is to be accomplished, but a preparation for the grave.

Grand climacterics.

With the changes that occur on or about the first three of these periods we have no concern at present; and shall hence proceed to that which frequently strikes our attention as taking place about the fourth, or in the interval between the fourth and fifth. This change is of two distinct and opposite kinds; and it is necessary to notice each.

Sudden renovation of power occasionally found in advanced life.

We sometimes find the system at the period before us exhibiting all of a sudden a very extraordinary renovation of powers. The author has seen persons who have been deaf for twenty years abruptly recover their hearing, so as in some cases to hear very acutely: he has seen

GEN. III. SPEC. II. Marasmus climactericus. Decay of nature. Climacteric disease.

others as abruptly recover their sight, and throw away their spectacles, which had been in habitual employment for as long a period; and he has also seen others return to the process of dentition, and reproduce a smaller or larger number of teeth to supply vacuities progressively produced in earlier life. Under the genus ODONTIA, in the first class and first order of the present system, several of these singular facts have been already noticed, and examples given of entire sets of teeth cut at this period. That the hair should evince a similar regeneration, of which instances are also adduced in the same place, and of which Forestus affords other examples*, is perhaps less surprising; since this has been known to grow again, and even to change its colour after death†. But I have occasionally seen several of these singularities, and especially the renewal of the sight and hearing, or of the sight and teeth, occur simultaneously. And hence Glanville spoke correctly when he affirmed that "the restoration of grey hairs to juvenility, and renewing exhausted marrow, may be effected without a miracle."

Sometimes an equally sudden decline without any manifest cause.

On the other hand, instead of a renovation of powers at the period before us, we sometimes perceive as sudden and extraordinary a decline. We behold a man apparently in good health, without any perceptible cause, abruptly sinking into a general decay. His strength, his spirits, his appetite, his sleep fail equally; his flesh falls away; and his constitution appears to be breaking up. In many instances this is perhaps the real fact; and no human wisdom or vigilance can save him from the tomb. But in many instances also it is an actual disease, in which medical aid and kindly attention may be of essential service; and upon an application of which we behold the powers of life, as in other diseases, rally; the general strength return; the flesh grow fuller and firmer, the complexion brighten; the muscles become once more

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* Lib. xxxi. Obs. 6.

† Eph. Nat. Cur. passim.

Gen. III. Spec. II. Marasmus climactericus. Decay of nature. Climacteric disease. Subject obscure and difficult.

broad and elastic; and the whole occasionally succeeded by some of those extraordinary renovations of lost powers or even lost organs to which I have just adverted.

The subject is obscure; and it is as difficult perhaps to account for either of these extremes—for the sudden and unexpected decline, as for the sudden and singular restoration. That the decline however is a real malady, and not a natural or constitutional decay, is perfectly obvious from the recovery. And hence Sir Henry Halford, in reference to the period in which it occurs, and by which, no doubt, it is influenced, has emphatically denominated it the Climacteric Disease.

Explanation of the chief seat and proximate cause of the disease.

Under the last species the author observed that the great chain of the organs of nutrition extends from the chylific viscera to the assimilating secernents; that these form the ends of the chain; that a powerful sympathetic action runs through the whole; but that this action is more powerful between the one end of the chain and the other, than between any of its intermediate links. He observed further that in the atrophy of old age the failure of action seems to commence and to be chiefly seated at the chylific or chyliferous end, and that the assimilating secernents exhibit the same failure only afterwards and by sympathy: that the lacteals become generally, and sometimes altogether obliterated, while the assimilating process is supported by an absorption, first of the animal oil deposited in the cellular membrane, then of this membrane itself, and, lastly, of much of the muscular and parenchymatous structure of the general frame. In the disease before us the reverse of all this seems to take place; and for its origin we must look to the assimilating powers constituting the other end of the chain. The patient falls away in flesh and strength before he complains of any loss of appetite, or has any dyspeptic symptoms; which only appear to take place afterwards by sympathy. And that the mesentery and lacteals are not paralyzed and obliterated, as in the atrophy of old age, is incontrovertible from the renovation of power and reproduction of bulk that form an occasional termination of the disease.

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Description.

In watching carefully the symptoms of this malady, when totally unconnected with any concomitant source of irritation either mental or bodily, we shall often perceive that it creeps on so gradually and insensibly that the patient himself is hardly aware of its commencement. "He perceives," to adopt the language of Sir Henry Halford, "that he is tired sooner than usual, and that he is thinner than he was; but yet he has nothing material to complain of. In process of time his appetite becomes seriously impaired; his nights are sleepless, or, if he get sleep, he is not refreshed by it. His face becomes visibly extenuated, or perhaps acquires a bloated look. His tongue is white, and he suspects that he has fever. If he ask advice, his pulse is found quicker than it should be, and he acknowledges that he has felt pains in his head and chest; and that his legs are disposed to swell; yet there is no deficiency in the quantity of his urine, nor any other sensible failure in the action of the abdominal viscera, except that the bowels are more sluggish than they used to be."

Sometimes he feels pains shooting over different parts of the body, conceived to be rheumatic, but without the proper character of rheumatism; and sometimes the head-ache is accompanied with vertigo. Towards the close of the disease, when it terminates fatally, the stomach seems to lose all its powers; the frame becomes more and more emaciated; the cellular membrane in the lower limbs is laden with fluid; there is an insurmountable restlessness by day, and a total want of sleep at night; the mind grows torpid and indifferent to what formerly interested it; and the patient sinks at last; seeming rather to cease to live, than to die of a mortal distemper.

Rarely appears in a simple form;

Such is the ordinary course of this disorder in its simplest form when it proves fatal; and the powers of the constitution are incapable of coping with its influ-

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ence. Yet it is seldom that we can have an opportunity of observing it in this simple form, and never perhaps but in a patient whose previous life has been entirely healthy, and whose mind is unruffled by anxiety. For if this complaint, whatever be its cause, should show itself in a person who is already a prey to grief, or care, or mental distress of any kind, or in whom some one or more of the larger and more important organs of the body, as the liver, the lungs, or the heart, has been weakened or otherwise injured by accident or irregularity, or is influenced by a gouty or other morbid diathesis, the symptoms will assume a mixed character, and the disease be greatly aggravated. It is these accidents indeed that for the most part constitute the exciting cause, as well as the most fearful auxiliary of the disease; for, without such, it is highly probable that the predisposition might remain dormant; and that many a patient who falls a sacrifice to it would be enabled to glide quietly through the sequestered vale of age to the remotest limit of natural life, and at length quit the scene around him without any violent struggle or protracted suffering, with an euthanasia sometimes though rarely attained, but ardently desired by us all.

but mostly connected with other affections: which often chiefly aggravate it; and render it fatal.

Disease more common to men than women.

Sir Henry Halford has remarked that the disease, according to his experience, is less common to women than to men. The author's own experience coincides with this observation. And we can be at no loss to account for the difference, when we reflect on the greater exposure of the latter than of the former to those contingencies which so frequently become occasional causes or auxiliaries, and which, at the period now alluded to, strike deeper and produce a much more lasting effect than in the heigh-day and ebulliency of life.

Explanation.

Common causes of excitement.

There are some events, however, that apply equally to both sexes, and which very frequently lead to this affection; and that is, the loss of a long-tried and confidential friend; of a beloved or only child; or of a wife or husband assimilated to each other in habits, disposition, general views and sentiments by an intercourse of

Gen. III. Spec. II. Marasmus climactericus. Decay of nature. Climacteric disease. Illustrated.

perhaps thirty or forty years standing. This last, as it has occurred to me, is a more marked and more frequent cause of excitement than any other. I have seen it in some instances operate very rapidly: and have my eye at this moment directed to the melancholy fate of a very excellent clergyman, between fifty and sixty years of age, the father of ten children, who were all dependent upon him, and whose benefice would have enabled him, in all probability, to provide for them respectably had he lived; but who, having lost the beloved mother of his family while lying-in of her tenth living child, was never able to recover from the blow, and followed her to the grave in less than three months.

Further illustrated.

I have at other times seen the same effect produced as clearly and decidedly, though with a much tardier step, and unaccompanied with any sudden shock. I attended not long since a lady in Edgeware Road, who died of a consumption at the age of fifty-four. Her husband, though not a man of keen sensibility, had attentively nursed her through the whole of her lingering illness, and had lived happily with her from an early period of life. He was aware of her approaching end, and prepared for it: and, in a few weeks after her decease, seemed to have recovered his usual serenity. Not long afterwards, however, he applied to me on his own account. I found him dispirited, and losing flesh; his appetite was diminishing, and his nights restless, with little fever, and altogether without any manifest local disorder. The emaciation with its accompanying evils nevertheless increased, the general disease became confirmed, and in about five months he fell a sacrifice to it.

Occasional cause sometimes very slight.

Occasionally, however, where the climacteric temperament, if I may so express myself, is lurking, a very trivial accidental excitement proves sufficient to rouse it into action. "I have known," says Sir Henry Halford, "an act of intemperance, where intemperance was not habitual, the first apparent cause of it. A fall, which did not appear of consequence at the moment, and which would not have been so at any other time, has some-

Gen. III. Spec. II. Marasmus climactericus. Decay of nature. Climacteric disease.

times jarred the frame into this disordered action. A marriage contracted late in life has also afforded the first occasion to this change."

Explained by a striking example.

It has in some instances followed upon a cutaneous eruption, of which the following case will afford a very striking example, and show in the clearest colours the general want of tone which under this morbid influence prevails throughout the system.

Most of my readers of this metropolis have heard of, and many of them have perhaps had the pleasure of being personally acquainted with the late James Cobb, Esq. Secretary to the East India Company, the history of whose life, from his intimate and extensive connexion and correspondence with the most brilliant and distinguished characters of the age that have figured either in political or fashionable life, and more especially from his own fine taste and commanding talents, and his unwearied efforts to patronize merit in whatever rank it was to be found, ought not to have been withheld from the world. In November 1816 this gentleman, then in his sixty-first year, and blessed with one of the firmest and most vigorous constitutions that I have ever known, applied to me for an erysipelatous affection of the face. It was troublesome, and for nearly a fortnight accompanied with a slight fever, and a good deal of irritation. It subsided at length, but left a degree of debility which called for a change of air, and relaxation from public duty. He made a short excursion to France, and returned much improved, but evidently not quite restored to all the strength and elasticity he formerly enjoyed. Insensibly, and without any ostensible cause, he became emaciated, walked from Russel Square to the East India House with less freedom than usual, and found his carriage a relief to him in returning home. His appetite diminished, his nights were less quiet, and his pulse a little quickened. At one time he complained of an inextinguishable thirst, and voided an unusual quantity of urine, so as to excite some apprehension of paruria *mellita*. The urine, however, evinced no sweetness,

Gradual and desultory progress of the disease.

Apparent but ineffectual metastasis.

and both these symptoms rapidly disappeared under the medical treatment laid down for him. The general waste and debility, however, continued to increase; his natural cheerfulness began to flag occasionally, and exertion was a weariness. At this period an inflammation commenced suddenly on the left side of the nates, which soon produced a tumour somewhat larger than a goose's egg, and suppurated very kindly. Sir Gilbert Blane and Sir Walter Farquhar were now engaged in consultation with myself, as was Dr. Hooper afterwards. It was a doubtful question what would be the result of this abscess? It might be regarded as an effort of nature to re-invigorate the system by a critical excitement; and in this view of the case there was reason for congratulation. But it was at the same time obvious, that if the strength of the system should not be found equal to this new source of exhaustion, and could not be stimulated to meet it, the abscess might prove highly unfavourable. The tumour was opened, and about a quarter of a pint of well-formed pus discharged: but the morbid symptoms remained without alteration, and the cavity seemed rather disposed to run into a sinus along the perinæum than to fill up. The opening was enlarged, but no advantage followed: it was evident there was too little vigour in the system to excite healthy action. The abscess was alternately stimulated with tincture of myrrh, a solution of nitrate of silver, and red precipitate; but the surface continued glassy with a display of pale and flabby granulations, that vanished soon after they made their appearance. Mr. Cline was now united in consultation, and concurred in opinion that the wound was of subordinate importance, and would follow the fortune of the general frame. The issue was still doubtful, for the constitution resisted pertinaciously, though upon the whole the disorder was gaining ground. Yet even at this time there was not a single organ we could pitch upon, with the exception of the abscess, that gave indication of the slightest structural disease. The lungs were perfectly sound and unaffected; the heart without palpitation; the mind in the fullest pos-

Disease gradually advances.

Gen. III. Spec. II. Marasmus climactericus. Decay of nature. Climacteric disease.

session of all its powers; the head at all times free from pain or stupor, even after very large doses of opium and other narcotics: the bile was duly secreted; the urine in sufficient abundance; and the bladder capable of retaining it without inconvenience through the whole night. The pulse, however, was quick, the stomach fastidious, and the bowels irregular, sometimes costive, and at others suddenly attacked with a diarrhœa that required instant and active attention to prevent a fatal deliquium. The wound continued on a balance: there was energy enough to prevent gangrene, but too little for incarnation.

Fatal termination.

A clearer example of the disease before us cannot be wished for or conceived. Unfortunately its progress, though retarded by the arms of medicine, was retarded alone. One of the last recommendations was a removal into the country: but Mr. Cobb was now become so debilitated and infirm, that this was found a work of some difficulty, and required contrivance. His Royal Highness the Duke of Sussex, however, being kind enough to accommodate our patient with the use of his easy and convenient sofa-carriage, for as long a period as he might chuse, he proceeded without much fatigue to a house provided for him on the borders of Windsor Forest. The distance was now become too considerable for me to attend him statedly, and I visited him but once or twice afterwards. He continued, however, to decline gradually, and, in about a month from the time of his going to Windsor, sunk suddenly under a return of the diarrhœa.

General medical treatment.

In the progress of this disease medicine will generally be found to accomplish but little. The constitutional debility must be met by tonics, cordials, and a generous diet: and a scrupulous attention should be paid to such contingencies of body or mind, as may form an exciting cause, or aggravate the morbid diathesis if already in a state of activity. Congestions must be removed where they exist, and every organ have room for the little play that the rigidity of advanced life allows to it: and where aperients are necessary, they should consist principally of

Gen. III. Spec. II. Marasmus climactericus. Decay of nature. Climacteric disease. Treatment.

the warm and bitter roots or resins, as rhubarb, guiacum, and spike aloes. In many instances the Bath water, and in a few that of Cheltenham, will be also found of collateral use: and especially where we have reason to hope that a beneficial impression has been made on the disease, and that the system is about to recover itself.

The last remark I shall beg leave to offer, I must give in the words of Sir Henry Halford himself. If not strictly medical, it is of more than medical importance; and I have very great pleasure in seeing it put forth from so high an authority, and finding its way into a professional volume. "For the rest," says he, "the patient must minister to himself. To be able to contemplate with complacency either issue of a disorder which the great Author of our being may, in his kindness, have intended as a warning to us to prepare for a better existence, is of prodigious advantage to recovery, as well as to comfort; and the retrospect of a well-spent life is a cordial of infinitely more efficacy than all the resources of the medical art."

Advantage of a patient's being able to minister to himself.

SPECIES III.

MARASMUS TABES.

Decline.

GENERAL LANGUOR; DEPRESSION OF STRENGTH, AND, MOSTLY, OF SPIRITS; HECTIC FEVER.

Gen. III. Spec. III. Origin of the specific terms not hitherto clearly explained.

Tabes is a Latin term of doubtful origin. The lexicographers derive it from the Greek τήκω, "macero," varied in the Doric dialect to τάκω,—whence Scaliger makes a compound of τακόϐιος, "macerans vita," "a consuming life, or life of consumption;" and supposes that such a word existed formerly, and that tabes is a derivative from

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Spec. III.
Marasmus
Tabes.
Decline.

it. This is ingenious, but nothing more. *Tab-eo*, or *tab-es*, is most probably derived from the Hebrew תאב (tab), literally "to pine away or consume;" which is the exact meaning of the Latin terms.

How distinguished from the other species of the genus.

Tabes is sufficiently distinguished from atrophy by the presence of hectic fever; from climacteric decay, by the tendency to depressed spirits, as well as its appearing at any age; and from consumption, by the local symptoms of the latter.

Its ordinary causes are commonly supposed to be an acrimony in the blood from an absorption of pus, or the introduction of some poisonous substance, as quicksilver or arsenic; or a scrophulous taint; or an irritation produced by excess in libidinous indulgences: thus laying a ground-work for the four following varieties:

α Purulenta.	Purulent decline.
β Venenata.	Decline from poison.
γ Strumosa.	Scrophulous decline.
δ Dorsalis.	Decline of intemperance.

α M. Tabes purulenta. Purulent decline.

In the FIRST OF THESE VARIETIES the absorbed pus may be contemplated as acting the part of a foreign and irritating substance *, and as acting upon a peculiarity of constitution: but unless the latter be present, pus will rarely, if ever, be found to produce a tabid frame: for, as already observed under hectic fever, if absorbed pus be capable, independently of idiosyncrasy, of inducing a decline in one instance, it ought to do in every instance; yet this we know is not the case, since buboes, empyemas, and other apostems and abscesses of large extent, have been removed by absorption, and yet no tabes has accompanied the process. It is said to occur more frequently where an abscess or a vomica is open; in consequence of pus becoming more acrimonious by the action of the air. But this supposition is altogether gratuitous: and where hectic fever accompanies a sore or open abscess, it is more probably from increased irritation on the

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* Armstrong, Diss. de Tabe purulentâ. Edin. 1732. Lentilius, Jatromnemata, p. 384. Stuttg. 1712. 8vo.

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edges or internal surface of the cavity, as already observed when treating on psoas abscess.

ϐ M. Tabes venenata. Decline from poison.

In TABES VENENATA, Dr. Cullen conceives that one cause of emaciation is produced by an absorption of oil from the cells of the cellular membrane into the blood, for the purpose of inviscating the acrimonious spiculæ of the poisonous substance. This may perhaps be true in some instances: but by far the greater number of poisons that enter the blood, whether by deglutition or inhalation, act by a chemical rather than by a mechanical power. Let them, however, act as they may, the hypothesis is not necessary to account for the emaciation: for the acrimony with which the blood is hereby contaminated, is alone sufficient to excite and maintain the hectic; as the hectic is alone sufficient to wear away the strength and substance of the system, and produces the waste. It is a disease, as Scheffler has observed, chiefly common to miners and mineralogists *: and, next to these, is to be found, perhaps, most frequently among the labourers in chemical laboratories.

There are other poisonous irritants which are altogether ingenerate or hereditary, that, by their perpetual stimulation, ultimately produce the same effect; as those of chronic syphilis, cancer, and scurvy.

γ M. Tabes strumosa. Strumous or mesenteric decline.

A more common cause, however, than any of these, is to be found in a state of the system which has apparently a very near relation to that of scrophula, though it is difficult precisely to identify them. The VARIETY FROM THIS CAUSE is, hence, frequently treated of under the head of scrophula or struma; but as it is peculiarly connected with a morbid condition of one or more of the organs of nutrition, including those of digestion and assimilation, and is uniformly accompanied with emaciation, irritation, and some degree of hectic fever, it more properly falls within the range of the genus MARASMUS than that of STRUMA, and constitutes a peculiar variety of DECLINE.

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* Von der Gesundheit der Berglente. Chemnitz, 1770.

GEN. III. SPEC. III. γ M. Tabes strumosa. Strumous or mesenteric decline.

Different stages of morbid hereditary diatheses.

Of all the contaminations that lurk in the blood, and are propagable in a dormant state, that of scrophula, consisting, as for the present we must allow it to do, in the acrimony before us, shows itself sooner than any of the rest. It is curious, indeed, to observe the different periods of time that hereditary diatheses of a morbid kind demand for their maturity, unless quickened into developement by some incidental cause. Scrophula very generally shows itself in infancy; phthisis, rarely till at the age of puberty; gout, in mature life; mania, some years later; and cancer still later than mania. Scrophula runs its course first, and becomes dormant, though rarely extinct; phthisis travels through a term of ten or twelve years, and if it do not destroy its victim by the age of thirty-five, generally consents to a truce, and is sometimes completely subjugated. All the rest persevere throughout the journey of life: they may indeed hide their heads for a longer or a shorter interval, but they commonly continue their harassings till the close of the scene.

Scrophulous taint in infancy chiefly manifested in the mesenteric glands.

When the strumous taint is excited into action in infant life, it generally fixes itself upon the chylific or chyliferous glands, especially when they are in a weakly state; most commonly upon the mesentery, and to this quarter it often confines itself; insomuch that "I have frequently," says Dr. Cullen, "found the case occurring in persons who did not show any external appearance of scrophula; but in whom the mesenteric obstruction was afterwards discovered by dissection*." It is supposed by Dr. Cullen, and by most pathologists, that the emaciation is in this case produced invariably by an obstruction of the conglobulate or lymphatic glands of the mesentery, through which the chyle must necessarily pass to the thoracic duct. That an obstruction thus total may occur, is not to be altogether disputed, because the lymph has been found stagnated in its course by such an obstruction of

Disease produced by obstruction.

Cullen's explanation;

not satisfactory.

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* Pract. of Phys. Part. III. Book I. § MDCVI.

Gen. III. Spec. III. γ M. Tabes strumosa. Strumous or mesenteric decline.

lymphatic glands in other parts: but I have already observed that it is an interruption of very rare occurrence*; so rare, that Mr. Cruikshank affirms he never saw such a stagnation on the dissection of any mysenteric case whatever. And that a scrophulous enlargement of the glands of the mesentery does not necessarily produce a total obstruction, is certain, because children, in whom mesenteric enlargement can be felt in the form of knots protuberating in the abdomen, have lived for a considerable number of years, sometimes ten or twelve, and have at last died of some other disease. And hence, it is perhaps more frequently the hectic fever kept up by the local irritation of the mesentery, and the general acrimony of the scrophulous taint in the blood, that produces the emaciation in this case, than the pressure of a scrophulous infarction.

Probably produced by irritation and hectic.

Description.

" The mesenteric decline," says Dr. Young, " is generally preceded by more or less of a head-ache, languor, and want of appetite. It is more immediately distinguished by acute pain in the back and loins, by fulness, and, as the disease advances, pain and tenderness of the abdomen. These symptoms are accompanied or succeeded by a chalky appearance, and want of consistency in the alvine evacuations, as if the chyle were rejected by the absorbents, and left in the form of a milky fluid in the intestines, and the functions of the liver were at the same time impaired, the natural tinge of the bile being wanting. The evacuations are also sometimes mixed with mucus and blood; and are attended by pain, irritation, and tenesmus, somewhat resembling those that occur in a true dysentery. Occasionally also there are symptoms of dropsy, and especially of ascites; as if the absorption of the fluid, poured into the cavity of the abdomen, were prevented by local obstacles: the absorbent glands, which are enlarged, being rendered impervious, and pressing also on the lacteals and lym-

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* Vol. I. p. 419. Cl. I. Ord. II. Parabysma *Mesentericum*.

Gen. III. Spec. III. γ M. Tabes strumosa. Strumous or mesenteric decline.

phatics which enter them and pass by them." The appetite is generally good and often ravenous; probably produced by some remote irritation acting sympathetically on the stomach; as that of the mesentery, or more likely that of the assimilating powers that constitute the opposite end of the chain of nutrient organs, and which from their morbid excitement produce a morbid waste, and demand a larger supply than they receive. As worms are easily generated, and multiply in the digestive organs when in a state of debility, they have often been found in a considerable number in this disease, and have sometimes been mistaken for the cause of the malady instead of the effect[*]. Balme gives a case in which they were equally discharged by the mouth and anus[†]. In the strumous enlargements are occasionally found calcareous concretions, such as often appear in the joints when weakened by arthritic affections[‡], or in other weak organs: and hence similar concretions are sometimes discovered in the lacteals and the liver[§].

Worms often found as an effect, and sometimes mistaken for a cause.

δ M. Tabes dorsalis. Decline of intemperance.

The decline from an intemperate indulgence in libidinous pleasures has been denominated TABES DORSALIS, from the weakness which it introduces into the back, or rather into the loins. It is a disease of considerable antiquity; for we find traces of it in the oldest historical records that have reached our own day: and it is particularly described by Hippocrates under the name of ΦΘΙΣΙΣ ΝΟΤΙΑΣ[||], literally "HUMID TABES," from the frequent and involuntary secretion, of a gleety matter or rather of a dilute and imperfect seminal fluid. He explains it to be, as a disorder of the spinal marrow, incident to persons of a salacious disposition, or who are newly married, and have too largely indulged in conjugal pleasures. He represents the patient as complaining of

Described by the oldest writers.

Description of Hippocrates.

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[*] Chesneau, Lib. v. Obs. 27.

[†] Journ. de Medicine, 1790. Sept. N. 1.

[‡] Douin, Journ. des Sçavans, 1690.—Monro, Med. Trans. II. Art. 18.

[§] Histoire de l'Academie des Sciences, &c. 1684.

[||] Περὶ τῶν ἐντὸς Παθῶν. Opp. p. 539. as also Περὶ Νούσων, II. Opp. p. 479.

a sense of formication or a feeling like that of ants creeping from the upper part of his body, as his head, into the spine of his back; and tells us that when he discharges his urine or excrements there is at the same time a copious evacuation of semen in consequence of which he is incapable of propagating his species, or answering the purpose of marriage. He is generally short-breathed and weak, especially after exercise: he is sensible of a weight in his head, his memory is inconstant and is affected with a failure of sight and a ringing in his ears. Though without fever at first, he at length becomes severely feverish, and dies of that variety of remittent which the Greeks called leipyria, a sort of causus or ardent fever attended with great coldness of the extremities, but with a burning fire and intolerable heat within, an insupportable anxiety and unconquerable driness of the tongue.

Gen. III. Spec. III. β M. Tabes dorsalis. Decline of intemperance.

Waste of seminal fluid not a cause as conjectured by Cullen:

Dr. Cullen does not think that the quantity of seminal fluid discharged by undue indulgence can ever be so considerable as to account for this general deficiency of fluids in the body, and the debility that accompanies it, and adds that we must therefore seek for another explanation of these evils. "And whether," says he, "the effects of this evacuation may be accounted for either from the quality of the fluid evacuated, or from the singularly enervating pleasure attending the evacuation, or from the evacuation's taking off the tension of parts, the tension of which has a singular power in supporting the tension and vigour of the whole body, I cannot positively determine; but I apprehend that upon one or other of these suppositions the emaciation attending the tabes dorsalis must be accounted for *."

but explicable in a more direct way.

Sexual organs closely sympathize with the brain.

It is not difficult to trace this result in a less doubtful and more direct way. The sexual organs, both in males or females, have a close and striking sympathy with the organ of the brain; and the fluid they secrete with the

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* Pract. of Phys. Part. III. B. I. § MDCX.

Gen. III. Spec. III. 3 M. Tabes dorsalis. Decline of intemperance. Illustrated.

nervous fluid. Whence Willis conceived that the fluids of both organs are the same, and hence expressly accounts for the debility*. Morbid salacity is no uncommon cause of madness, as we shall have occasion to observe hereafter. Irritation of the uterus shortly after child-birth, is a still more frequent cause of the same mental affection. The testes are not capable of secreting their proper fluid till the sensorial organ has acquired, or is on the point of acquiring, maturity, so that both become perfect nearly at the same time; the mere apprehension of failure when in the act of embracing has at once, in a variety of instances, unnerved the orgasm, and prevented the seminal flow so effectually that the unhappy individual has often required many weeks or even months before he could recover a sufficient confidence to render the operation complete; while as Dr. Cullen has correctly observed the evacuation itself, even when conducted naturally, produces a pleasure of a singularly enervating kind. It is in truth a shock that thrills through all the senses; and hence in persons of an epileptic temperament, has been known, as we shall have occasion to observe more fully hereafter, to bring on a paroxysm while in the act of interunion.

Hence sensorial power weakened by immoderate indulgence:

It is hence easy to see that an immoderate excitement of the generic organs, and secretion of seminal fluid must weaken the sensorial powers even at their fountain; and consequently that the nervous and muscular fibres throughout the entire frame, and even the mind itself must be influenced by the debility of the sensorium. This we might suppose if there were no chronic flux from the seminal vessels. But when we consider the effect often produced on the general frame by the discharge, or rather the irritation of a single blister; or, which is perhaps more to the purpose, of a small seton or issue, we can be at no loss to account for all the evils

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* Pharm. Rationalis de Medicament. Operat. Pars 2. 1675.

Decline of intemperance. and particularly by chronic and involuntary emission.

that haunt the worn-out debauchee, and especially the self-abuser, from involuntary emissions of a seminal fluid however dilute and spiritless, in connection with the dreadful debility we have just noticed, and which is the cause of this emission. The nervous irritation which results from this debility is the source of the hectic by which the miserable being is devoured: and hence the heavy terrors and insupportable anxiety, corporeal as well as mental, the sense of formication and other phantasms, the flaccidity of the back and loins, the withering of the entire body, the constant desire of erection with an utter inability of accomplishing it, which haunt him by day and by night, and throw him into a state of despondency. A fearful picture, which cannot be too frequently before the eyes of a young man in this licentious metropolis in order to deter him from plunging into evils to which he is so often exposed *.

General medical treatment.

Much of the medical treatment it may be proper to pursue has been anticipated in several of the preceding species.

Treatment of purulent decline.

The first variety in which the decline is dependent on the stimulus of an abscess or sore, or the introduction of pus into the circulation, can only be cured by a cure of the local affection. The strength may in the mean while be supported by a course of inirritant tonics, as cinchona and the mineral acids, nutritious diet, gentle exercise and pure air. And, if stimulants be at any time employed with a view of acting more directly on the morbid irritation and changing its nature, they should be limited to the milder resins, as myrrh, or the milder terebinthinates, as camphor, and balsam of copaiva.

Treatment of decline from poisonous inhalations.

In decline from the inhalation of metallic or other acrimonious vapours, if Dr. Cullen's hypothesis were established, that the emaciation is a mere result of the vis

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* Lewis's Essay upon the Tabes Dorsalis. Lond. 1758.—Brendal, Diss. de Tabe Dorsali. Goett. 1748.

Gen. III. Spec. III. Marasmus Tabes. Decline. Treatment.

medicatrix naturæ, and produced by an absorption of oil from the cellular membrane for the purpose of sheathing the minute goads of the poison, it would be our duty to follow up this indication and employ inviscating demulcents, both oils and mucilages. But this practice has rarely been productive of any success: and we have much more reason to expect benefit from a use of the alkalies, which, by uniting with the metallic salts, if they still exist in the circulation, may disengage their acid principles, reduce the metallic base to a harmless regulus, and, by the new combination hereby produced, form a cooling, perhaps a sedative neutral. The first step, however, is to remove the patient from the deleterious scene to an atmosphere of fresh air, then to purify the blood, whether we employ the alkalies or not, with alterant diluents, as the decoction of sarsaparilla, and afterwards to have recourse to bitters, astringents, and the chalybeate mineral waters.

Treatment of strumous decline.

In strumous decline, the mode of treatment should run precisely parallel with that for most of the species of PARABYSMA, or VISCERAL TURGESCENCE, already laid down under their respective heads, and particularly with that for mesenteric parabysma, to which the reader may turn *.

Treatment of decline from intemperate indulgence.

In the treatment of tabes *dorsalis*, or decline from intemperate indulgence, our attention must be directed to the mind as well as to the body; for it is a mixed complaint, and each suffers equally. A summer's excursion with a cheerful and steady friend, into some untried and picturesque country, where the beauty and novelty of the surrounding scenery may by degrees attract the eye, and afford food for conversation, will be the most effectual step to be pursued if the symptoms be not very severe. The hours should be regular, with early rising in the morning, the diet light, nutritive, and invigorating, and a little wine may be allowed after dinner; since it will

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* Vol. 1. p. 418. Cl. I. Ord. II.

Gen. III. Spec. III. Marasmus Tabes. Decline. Treatment.

almost always be found that the patient has too freely indulged in wine formerly; and he must be let down to the proper point of abstinence by degrees*. The metallic tonics will commonly be found of more use than the vegetable, with the exception of iron, which is generally too heating: though the chalybeate waters may be drunk, if sufficiently combined with neutral salts. The local cold bath of a bidet should be used from the first, and afterwards bathing in the open sea.

If the disease have made such an inroad on the constitution that travelling cannot be accomplished; if the mind be overwhelmed, the back perpetually harassed with pain and feebleness, and the nights sleepless with hectic sweats and a frequent involuntary discharge, two grains of opium, or more if needful, should be taken constantly on going to bed; diluted acids, vegetable or mineral, should form the usual beverage, and a caustic be applied to the loins on each side. Hippocrates recommends the actual cautery, and that it should descend on each side of the back, from the neck to the sacrum. Savine bougies have been prescribed by some writers as a topical stimulus; but a bidet of cold water is preferable; with injections of zinc or copper, at first not rendered very astringent, but gradually increased in power.

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* See Wichmann, De Pollutione diurnâ, frequentiori, sed rarius observatâ, Tabescentiæ causâ. Goett. 1782.

SPECIES IV.

MARASMUS PHTHISIS.

Consumption.

COUGH: PAIN OR UNEASINESS IN THE CHEST, CHIEFLY ON DECUMBITURE: HECTIC FEVER: DELUSIVE HOPE OF RECOVERY.

GEN. III. SPEC. IV. Arrangement and subdivisions of Cullen

CONSUMPTION, or PHTHISIC as it is sometimes called by old medical writers, is, by Dr. Cullen contemplated as nothing more than a sequel of hæmoptysis, instead of being regarded as an idiopathic affection; and his species, which are two, can only be viewed, and so appear to have been by Dr. Cullen himself, as separate stages in the progress of the complaint; his first species being denominated phthisis *incipiens*, and characterized by an absence of purulent expectoration; and his second, phthisis *confirmata*, distinguished by the presence of this last symptom.

unsatisfactory: but resulting from the shackles of his classification.

This, however, is a very unsatisfactory, as well as a very unscientific view of the subject, and evidently betrays the trammels of Dr. Cullen's classification; since he seems only to have placed the disease in this position because he could find no other to receive it: for he admits in his First Lines that, "phthisis arises also from other causes besides hæmoptysis *." It is highly probable, indeed, that phthisis occurs, or at least commences, more frequently without hemorrhage from the lungs than with it, and consequently that hæmoptysis ought much rather to be regarded as a symptom or sequel of phthisis, than phthisis of hæmoptysis.

Hæmoptysis rather a sequel than a cause of phthisis.

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* Part I. Book IV. Ch. I. Sect. DCCCLII.

Gen. III. Spec. IV. Marasmus Phthisis. Consumption.

"Hæmoptysis," observes Dr. Young, in a work that has the rare advantage of combining great research and learning, comprehensive judgement, and a study of the present disease in his own person, "is usually enumerated among the exciting, or even among the more remote causes of consumption; but in a healthy constitution, hæmoptysis is not materially formidable; and it is conjectured that when it appears to produce consumption it has itself been occasioned by an incipient obstruction of a different kind *." So that on the concurrence of the two we may commonly adopt the opinion of Desault, and call it an hæmoptysis from consumption, rather than a consumption from hæmoptysis †.

Of the three varieties we are about to describe, we shall find hæmoptysis a frequent cause of the second, but rarely of either of the others. These varieties I have taken from Dr. Duncan's very valuable "Observations" on consumption: they are evidently drawn from a close and practical attention to the disease, and are as follow:

α Catarrhalis.	Catarrhal consumption.
β Apostematosa.	Apostematous consumption.
γ Tubercularis.	Tubercular consumption.

α Distinctive signs of M. Phthisis catarrhalis, or catarrhal consumption.

In the FIRST VARIETY, the cough is frequent and violent, with a copious excretion of a thin, offensive, purulent mucus, rarely mixed with blood; generally soreness in the chest, and transitory pains shifting from side to side. It is chiefly produced by catching cold, or the neglect of a common catarrh.

β Distinctive signs of M. Phthisis apostematosa, or apostematous consumption.

In the APOSTEMATOUS VARIETY, the cough returns in fits but is dry: there is a fixed, obtuse, circumscribed pain in the chest, sometimes pulsatory; with a strikingly difficult decumbiture on one side; the dry cough at length terminates in a sudden and copious discharge of purulent

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* Treatise on Consumptive Diseases, p. 45.

† Sur les Maladies Véneriennes, la Rage, et la Phthisie, &c. 12 Bord. 1733.

GEN. III. SPEC. IV. Marasmus Phthisis. Consumption.

matter, occasionally threatening suffocation; the other symptoms being temporarily, in a few rare instances perhaps permanently, relieved. When hæmoptysis is the cause, the disease generally appears under this form.

γ Distinctive signs of M. Phthisis tubercularis, or Tubercular Consumption.

In the TUBERCULAR VARIETY, the cough is short and tickling; and there is an excretion of the watery, wheylike sanies, sometimes tinged with blood; the pain in the chest is slight; and there is mostly an habitual elevation of spirits. Usually the result of a scrophulous diathesis.

In Dr. Duncan's observations, consumption or phthisis is introduced as a genus, and consequently the varieties now offered as so many species; yet as the tubercular may run into the apostematous variety, and the catarrhal into both, according to the peculiarity of the constitution, and other concurrent circumstances, and more especially as a common cause may produce all of them in different idiosyncracies, the present subdivision will perhaps be found the most correct.

Dyspeptic phthisis of Philip, what?

Dr. Wilson Philip, has formed another variety (with him species) of consumption, to which he has given the name of *Dyspeptic Phthisis*, and which he supposes to be produced by a previously diseased state of the digestive organs in which the lungs ultimately participate. "Drunkards," says he, "at that time of life which disposes to phthisis, frequently fall a sacrifice to this form of the disease; and those who have been long subject to severe attacks of dyspepsia, and what are called bilious complaints, are liable to it.—What is the nature of the relation observed between the affection of the lungs, and that of the digestive organs in this species of phthisis? is the one a consequence of the other, or are they simultaneous affections, arising from a common cause? they are not simultaneous affections, for the one always precedes the other. In by far the majority of cases in which both the lungs and digestive organs are affected, the affection of the digestive organ precedes that of the lungs. In some instances, we find the affection of the lungs the primary disease: but in these the case does not assume the form above described, but that of simple phthisis; and the hepatic affection, which is always the most prominent feature of this derangement in the digestive organs, does not show itself till a late period of the disease, and then little, if at all influences the essential symptoms*."

These remarks show clearly that phthisis in this form is a sequel of a prior disorder, rather than an idiopathic affection; and, as such, needs not be pursued further in describing the present species.

Subdivisions of Bayle:

It would however be tedious and of no practical use, to notice the different ramifications into which consumption has been followed up by many of the most approved pathologists that have touched upon it. Among modern writers, more especially, it has been very unnecessarily subdivided: thus Bayle gives us six species, derived from supposed organic causes†; of most of which we can know nothing till the death of the patient; Portal fourteen‡, the first two of which, the scrophulous and plethoric, are peculiarly entitled to attention, while the rest are drawn from other diseases with which it is often complicated, or of which it is a sequel. In Morton and Sauvages the divisions and subdivisions are almost innumerable. The Greek pathologists are not chargeable with the same error; for in general they treat of the disease, under two branches alone, phthisis, and phthoe; the first importing abscess of the lungs, or the apostematous variety of the present classification, and the second ulceration of the lungs, embracing perhaps the greater part of the other two. The terms are those of Hippocrates, and they are thus interpreted by Aretæus §.

of Portal:

of Morton and Sauvages:

Phthisis and phthoe of the Greeks.

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[*] Trans. of Medico-Chirurg. Soc. Vol. VII. p. 499.

[†] Recherches sur la Phthisie pulmonaire. Par. 1810.

[‡] Observations sur la Nature et la Traitement de la Phthisie pulmonaire. 2 tom. 8vo. Paris, 1809.

[§] Morb. Chron. I. 10.

Gen. III. Spec. IV. Marasmus Phthisis. Consumption.

Extent and fatality of phthisis: altogether incurable in the opinion of Bayle. This opinion opposed by occasional facts.

Phthisis, as sufficiently appears from the last paragraph, is a disease of high antiquity as well as of most alarming frequency and fatality. So frequent, indeed, is it as to carry off prematurely, according to Dr. Young's estimate, and the calculation is by no means overcharged, one-fourth part of the inhabitants of Europe [*]: and so fatal that M. Bayle will not allow it possible for any one to recover who suffers from it in its genuine form[†]. I can distinctly aver however, that I have seen it terminate favourably in one or two instances when the patient has appeared to be in the last stage of the disease, with a pint and a half of pus and purulent mucus expectorated daily, exhausting night-sweats and anasarca; but whether from the treatment pursued or a remedial exertion of nature I will not undertake to say. Dr. Parr affirms that he has witnessed six cases of decided phthisis recovered from spontaneously. The ordinary period of the consumptive diathesis is from the age of eighteen to that of thirty-five, though it occasionally anticipates the first, and overpasses the second, of these limits; the mean term of its proving fatal is about thirty; and the annual victims to its ravages in Great Britain, Dr. Woolcombe has calculated at fifty-five thousand [‡].

Ordinary range of the consumptive diathesis.

Mean rate of fatality.

Predisponent and exciting causes.

Exciting causes numerous.

The only causes of phthisis we are acquainted with are predisponent, and those that excite the predisposition into action. Of the nature of the predisponent cause, we know little more than that it appears to appertain to a peculiarity of constitution which will be noticed presently. The exciting or occasional causes are very numerous, as mechanical irritation of the lungs from swallowing a piece of bone; the dust of metallic or other hard substances perpetually inhaled; frequent and sudden changes of temperature or exposure of the body to cold when in a heated state and unprepared for it; overaction in speaking, singing, or playing on a wind-instrument; the

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[*] On Consumptive Diseases, Ch. III. p. 20.

[†] Recherches sur la Phthisic pulmonaire. Par. 1810.

[‡] Remarks on the frequency and fatality of different diseases, &c, 8vo. Lond. 1808.

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irritation of various other diseases, as worms, scrophula, syphilis or measles; the sudden suppression of a cutaneous disease that has continued long and formed a part of the habit, as itch; or of any habitual discharge as that of menstruation, or blood from the hemorrhoidal vessels, when the discharge has become periodical: the irritation of a too rapid growth of the body, and that of various passions perpetually preying upon the individual; as mortified ambition, disappointed love, home-longing *, when at a remote distance from one's friends and country.

Mechanical irritation.

Examples of consumption from a mechanical irritation of the lungs are peculiarly numerous, and they furnish cases of every variety of the disease according to the habit or idiosyncrasy, though the apostematous is less frequent than the rest. So common is this complaint among persons employed in dry-grinding, or pointing needles in needle-manufactories, that Dr. Johnstone of Worcester informs us they seldom live to be forty, from the accumulation of the dust of the grind-stones in the air-cells of the lungs, and the irritation and suppuration which follows †. It appears to be little less common among knife and scythe-grinders; whence, according to Dr. Simmons, the disease thus originating is called the grinders' rot ‡, and Wepfer gives an account of its proving endemic at Waldshut, on the Rhine, where there is a cavern in which mill-stones are dug and wrought, the air is always hot even in the winter, and a very fine dust floats in it, which penetrates leathern bags, and discolours money contained in them. "All the workmen," says he, "become consumptive if they remain there for a year, and some even in a shorter time; and they all die unless they apply early for assistance §." And, hence, Dr.

Fine acuated dust floating in the air.

In some places endemic from this cause.

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* R. Hamilton, in Duncan's Med. Com. xi. p. 343.

† Mem. Med. Soc. v. 1799. p. 89.

‡ Pract. Observ. on the Treatment of Consumptions, 8vo. 1780.

§ Observationes de affect. Capitis. 4to. Schaff. 1727-8, quoted by Young on Consumptive Diseases, p. 206.

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Fordyce had much reason for regarding the dust of the streets of London, as a serious cause of pulmonic disorders*; though it is a cause that has been much diminished since the introduction of paving and watering.

Irritation from a lodgement of a bony fragment in the esophagus or stomach.

A lodgement of some fragment of a bone even in the esophagus has, in like manner, been a frequent cause of phthisis, which has often been protracted through a long period of time. Thus Claubry gives a case of this kind which had continued for fourteen years, and the patient seemed to be in the last stage of a consumption when he was fortunate enough to bring up the piece of bone spontaneously, in consequence of which he recovered, though for the preceding four years he had laboured under an hæmoptysis†. Mr. Holman describes a similar case that had run on for fifteen years, accompanied with cough, hæmoptysis, and hectic diarrhœa; and which was also speedily relieved in consequence of the bony fragment, three quarters of an inch in length, and apparently carious, being suddenly coughed up after the discharge of a pint of blood‡.

Irritation from an immoderate use of the vocal organs in speaking, singing, or using wind-instruments.

A moderate use of the vocal organs, as of any other, tends to strengthen them, and to enable public speakers, singers, and performers on wind-instruments to go through great exertion without inconvenience, which would be extremely fatiguing to those who are but little practised in any of these branches; but the labour is often carried too far, and the lungs become habitually irritated, and hæmoptysis succeeds. I have known this terminate fatally among clergymen; who have lamented, when too late, that in the earlier part of life they spent their strength unsparingly in the duties of the pulpit. Hence, Dr. Young observes from Rammazini§, that public speakers, readers, and singers, are most liable to

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[*] Trans. of Soc. for the Improvement of Med. and Chir. Knowledge. Vol. I. 252.

[†] Sedill. Journ. Gen. Med. xxxiv. p. 13. 1809.

[‡] Lond. Med. Journ. VII. p. 120.

[§] On Consumptive Diseases, p. 264.

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pulmonary diseases, and that Morgagni and Valsalva have confirmed the observation. Cicero himself felt it necessary, as he tells us in his book on orators, to retire from the forum for two years, during which he travelled into Asia, and afterwards returned with renewed vigour to the duties of his profession; and Moliere died of hæmoptysis, immediately after performing, for the fourth time, his Malade imaginaire *.

Irritation from sympathetic action.

There are many diseases that have a peculiar tendency to excite phthisis from their close connexion with the lungs or affinity to hectic fever, which is one of its most prominent symptoms. Thus, neglected catarrhs form a frequent foundation, and measles for the same reason. Whether the tubercles found in the substance of the lungs in the tubercular variety of consumption, be, in every instance, strictly srophulous, may admit of a doubt; that they are so in many cases is unquestionable; and hence scrophula becomes very generally an exciting, and not unfrequently, perhaps, a primary cause, of this disease. There is a case by Lissardet, of a fatal consumption which suceeeded to a psora, supposed to have been too hastily cured; and another by Cœuvet of a more favourable termination, under similar circumstances, the dartre having re-appeared. It has occurred more than once to myself, that the lungs have been attacked during the cure of cutaneous affections, and, in one instance, fatally, even where no hasty mode of treatment had been pursued †.

The tendency of the syphilitic poison to produce phthisis has been noticed by almost every writer from the time of Bennet, who particularly dwells upon it ‡; but whether this would be adequate to such a purpose without an hereditary predisposition is uncertain. And the same remark may be made respecting worms which

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* Van Swieten, Aph. iv. § 1201. p. 49.

† On Consumptive Diseases, p. 269.

‡ Vestibulum Tabidorum, 8vo. 1654. Leyd.

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Morgagni has stated to be a very common cause[*]. Indeed any habitual irritation, in any part of the alimentary canal seems capable of exciting a sympathetic action in the lungs; and hence Wilson in Dr. Duncan's Annals, gives a case of hectic in a child produced by swallowing a nail two inches long, which remained in the stomach fifteen months, and was then thrown up, and succeeded by a recovery of health[†].

Irritation from rapid growth.

Rapid growth is always attended with debility and consequent irritability of the entire system; and, where there is a predisposition to consumption, this also becomes often its harbinger, unless great caution is observed on the occasion. Richerand relates a case of this kind that terminated fatally, the individual having grown more than an English foot in a year[‡]. I have known a still more rapid growth without any other inconvenience than that of languor; but in this case there was no phthisical predisposition.

Where the chest labours under any misformation we can readily trace another cause of excitement, and are prepared to meet the examples that from this source so frequently occur to us in practice. But it is less easy to explain by what means persons otherwise deformed, and particularly those who have had limbs amputated should be more liable to consumption than others; yet this also is a remark that has been made by Bennet[§], though I do not know that it has been supported by concurrent observation.

Irritation from sudden vicissitudes of the atmosphere. This the most common and active of all irritations.

Of all the occasional or accidental causes of phthisis, however, frequent and sudden vicissitudes of temperature are probably the most common; so common indeed, and at the same time so active, as often to be a cause of consumption in constitutions where we cannot trace any peculiar taint or predisposition whatever. Several hundred cases of phthisis from this cause, among which were many fatal ones, occurred in the channel fleet that blockaded the port of Brest in April 1800, as is particularly noticed by Dr. Trotter. The summer was hot and dry, the duty very severe; and the sailors, wet with sweat, were frequently exposed to currents of air at the port-holes; and little time was allowed for refitting*.

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[*] De Morb. Thoracis. Lib. II. Ep. Anat. XXI. 43.

[†] Vol. I. 1796.

[‡] Sedill. Journ. Gen. Med. XX. p. 255.

[§] Tabid. Theatr. p. 99.

Causes. Severe ravage in the channel fleet, 1800.

Hence the most frequent examples of consumption are to be found in those countries which are most subject to changes of temperature. In Great Britain, it is calculated that this disease carries off usually about one-fourth of its inhabitants; at Paris, about one-fifth; and at Vienna, one-sixth: while it is by no means common in Russia, and still less so in the West Indies; for it is checked in both regions by the greater uniformity of the atmosphere whether hotter or colder†. It is a singular fact, and not well accounted for, that of all places which have hitherto been compared, the proportional mortality from consumption appears to have been the greatest at Bristol; and this, not among its occasional visitors, but its permanent inhabitants; and yet, as though in defiance of experience, this very place has been chosen as the great resort of consumptive persons‡. Nor does its mineral water seem entitled to any higher compliment than its atmosphere. Dr. Beddoes affirms in direct terms that it is of no manner of use§; and Dr. Thomas, in more measured language, speaks nearly to the same effect: "In my humble opinion," says he, "the waters of the hot-wells are by no means deserving of the credit ascribed to them; as, during a residence of some time at and near these wells, I cannot charge my memory with a single instance

Mortality in Great Britain from this cause.

At Paris and Vienna.

In places less exposed to its causes.

Consumption most frequent at Bristol; not merely among occasional visitors, but permanent inhabitants.

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* Medicina Nautica. Vol. III. p. 325.

† Woolcombe (Dr. W.) Remarks on the frequency and fatality of Diseases, 8vo. Lond. 1808.—Southey (Dr. H. H.) Observations on Pulmonary Consumption, 8vo. Lond. 1814.

‡ Young ut suprà, p. 42.

§ Manuel of Health, &c. 12mo. Lond. 1806.

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where any person, labouring under a confirmed phthisis, experienced much relief from their use alone *."

Consumptive diathesis hereditary.

Doubted by Portal and a few other pathologists.

But conceded to by most from the earliest ages.

Where a consumptive diathesis has once originated, it is often very evidently transmitted to succeeding generations; and there is great reason to believe that the disease is in a certain degree contagious. M. Portal, and a few other pathologists of distinction, have doubted or denied that it possesses any such property; but the apparent instances of communication among near relations and close attentive nurses, and especially between husbands and wives, who have fallen victims to it in succession, are so frequent, that its contagious power has been admitted by most practitioners and in most ages. Aristotle appeals to it as a matter of general belief among the Greeks in his day †: and it has since been assented to in succession by Galen, Morton, Hoffman, Vogel, Desault, Darwin, and most modern writers.

Atmosphere of contagion sometimes wide:

but very rarely so.

Hence caution necessary among attendants.

I have myself been witness to various cases which could not be ascribed to any other cause; and Dr. Rush has given an account of a consumption manifestly contagious, which spread from the proprietors of an estate among the negroes, who were neither related to the first victims, nor had been subjected to fatigue or anxiety on their account, and amongst whom it scarcely ever makes its appearance ‡. The disease, however, is but slightly contagious, admitting it to be so at all; and seems to demand a long and intimate communion, as, for instance, that of sleeping or constantly living in the same room, to render the miasm effective. Yet, in the present state of the question, most judicious practitioners from the time of Galen have thought it right to follow his advice, and to caution attendants upon consumptive patients against the danger of being constantly about their persons through the whole course of the disease.

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* Practice of Physic, p. 508, sixth edit.

† Problem, Sect. I. 7.

‡ Medical Inquiries and Observations, &c. Vol. I. 8vo. Phil. 1789.

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The diathesis strictly consumptive is usually associated, in the language of Hippocrates * and Aretæus †, with a smooth, fair, and ruddy complexion, light or reddish hair, blue eyes, a long neck, a narrow chest, slender form, and high shoulders, or, in the words of Hippocrates, shoulders projecting like wings, and a sanguine disposition. In some instances, however, the skin is dark, and the hair almost black. According to Dr. Withering and Dr. Darwin, the most constant mark of a consumptive habit is an unusual magnitude of the pupil, to which some have added long and dark eye-lashes; but this last character seems loose and unestablished. It is a remark far better supported that the teeth are peculiarly clear, and the eyes peculiarly bright; and that both become more so when the disease has once commenced its inroad; the former assuming a milky whiteness, and the latter a pearly lustre: showing how completely the animal oil is absorbed and carried off, not merely from the surface, and from the interstices of the muscles by which the form chiefly becomes emaciated, but from every organ whatever: and, in the appearance of the teeth, affording an additional proof to those already offered when treating of ODONTIA ‡, that these peculiar bones are not extraneous bodies, destitute of vascularity, but possessing the same organization as other bones; rendered yellow by a deposit of animal oil, and blanched by its removal.

Character of consumptive diathesis. Complexion. Magnitude of pupil. Teeth pearly. Eyes peculiarly bright.

Inference from this state of the teeth.

Professor Camper, and most physicians with him, affirm that this appearance accompanies all the varieties of the disease; but Dr. Foart Simmons limits it to the tubercular alone; and conceives it to be a distinguishing characteristic of this form of the disease or of a predisposition to it. And he remarks further, that of those who

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* Epidem. v. p. 1142.

† Chron. Dis. i. 10. 12.

‡ Cl. I. Ord. I. Vol. I. p. 47.

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are carried off by tubercular phthisis, the greater number will be found never to have had a carious tooth *.

Origin and progress of the disease.

First stage.

The earliest symptoms of phthisis, in whatever manner excited, are insidious, and show themselves obscurely. The patient is, perhaps, sensible of an unusual languor, and breathes with less freedom than formerly, so that his respirations are shorter and increased in number. He coughs occasionally, but does not complain of its being troublesome, and rarely expectorates at the same time: yet if he make a deep inspiration he is sensible of some degree of uneasiness in a particular part of the chest. These symptoms gradually increase, and at length the pulse is found quicker than usual, particularly towards the evening; a more than ordinary perspiration takes place in the course of the night; and if the sleep be not disturbed by coughing, a considerable paroxysm of coughing takes place in the morning, and the patient feels relaxed and enfeebled. This may be said to form the first stage of the disease: and it is the only hopeful season for the interposition of medical aid.

Second stage.

The malady is now decidedly established; the cough increases in frequency, and from being dry is accompanied with a purulent mucus, varying, according to the peculiar modification of the disease, from a watery whey-like sanies occasionally tinged with blood, to a sputum of nearly genuine pus. It may, as Aretæus has well observed, be livid, deep-black, light-brown, or light-green; flattened or round; hard or soft; fetid or without smell. In many cases it is very scanty; and we may also add with Aretæus that in some consumptions there is no expectoration at all; for in the apostematous variety the sufferer has sometimes died before the vomica has broken. The uneasiness in the chest, only perceived at first on making a deep inspiration, is now permanent and attended with a sense of weight: the hectic fever has

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* Practical Observations on the Treatment of Consumptions. By Samuel Foart Simmons, M.D. 8vo. London, 1779.

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assumed its full character; the patient can only lie with comfort on one side, which is usually the side affected; and the breathing, as Bennet has remarked, is frequently accompanied by a sound like the ticking of a watch. The strength now fails apace; the pulse varies from about a hundred to a hundred and twenty or thirty; the teeth, from a cause just pointed out, increase in transparency, and the sclerotica of the eye is pearly-white; "the fingers, to continue the elegant description of Aretæus as given by Dr. Young, are shrunk, except at the joints, which become prominent; the nails are bent for want of support and become painful; the nose is sharp, the cheeks are red, the eyes sunk, but bright, the countenance as if smiling; the whole body is shrivelled; the spine projects, instead of sinking, from the decay of the muscles; and the shoulder-blades stand out like the wings of birds."

Third stage.

The third stage is melancholy and distressing, but usually of short duration. It commences with a depressing and colliquative diarrhœa; but till this period, and occasionally indeed through it, the patient supports his spirits and flatters himself with ultimate success, while all his friends about him are in despondency, and find it difficult to suppress their feelings. The voice becomes hoarse, the fauces aphthous, or the throat ulcerated, with a difficulty of swallowing. Dropsy, in various forms, now makes its approach; the limbs are anasarcous, the belly tumid, or the chest fluctuating; and the oppression is only relieved by an augmentation of the night-sweats or of the diarrhœa; for it is generally to be found that the one set of symptoms is less as the other is greater. "A few days before the patient's death, he is frequently unable to expectorate from apparent weakness, and sometimes dies absolutely suffocated: but much more commonly the secretion of pus, as well as the expectoration, has ceased; as if the capillary arteries had lost their power, or the fluids of the system were exhausted. There is also sometimes a degree of languid delirium for some days, and occasionally a total imbecility for a week or

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two: though, in general, the faculties are entire, and the senses acute, the patient being perfectly alive to the danger and distress of his situation, and retaining, even when his extremities are becoming cold, a considerable quickness of hearing and feeling. The closing scene is often painful, but it sometimes consists in the gradual and almost imperceptible approach of a sleep which is the actual commencement of death *."

Progress varied in different cases from habit or idiosyncrasy.

Sometimes peculiarly rapid; especially in the apostematous variety.

Such is the common progress and termination of the disease; but it varies considerably in the character and combination of its symptoms, and particularly in the tardiness or rapidity of its march, according to the habit or idiosyncracy of the individual, or the variety of the disease itself. Where the constitution is firm, and the hereditary predisposition striking, it commonly assumes the apostematous form, and runs on to the fatal goal with prodigious speed, constituting what among the vulgar is called, with great force or expression, a galloping consumption. In this case, the activity of the absorbent, and, indeed, of every other part of the general system is wonderful: the whole frame is in a state of estuation and greedily preying upon itself. The animal spirits are more than ordinarily recruited, and all is hope and ardent imagination; the secernents play with equal vigour, and the skin is drenched with moisture, the bronchial vessels are overloaded with mucus, vomica after vomica becomes distended with pus, and the bowels are a mere channel of looseness. The absorbents drink greedily; and animal oil, cellular membrane, parenchyma, and muscle, are all swallowed up and carried away, till every organ is rapidly reduced to half its proper weight and bulk, and the entire figure becomes a shrivelled skeleton. So swift was the progress of the disease in the case of the Duchess de Pienne that M. Portal informs us she died in ten or twelve days from the first alarm.

Has run its course and destroyed in ten days.

Sometimes as remarkably tardy:

On other occasions, the march of the consumption is as remarkable for its tardiness. This is particularly the

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* Young, On Consumptive Diseases, p. 28.

case with the tubercular variety when not quickened in its pace by returns of hæmoptysis. Hoffman gives instances of two or three who lived under the disease for thirty years: and in the Edinburgh communications is the case of an individual who passed nearly the whole of a long life under its influence, who was consumptive from eighteen to seventy-two, and died of the complaint at last. Of two hundred cases, however, selected by M. Bayle a hundred and four died within nine months, which may hence be regarded as the mean term.

especially in the tubercular variety.

Has lasted thirty years: and nearly through the whole of a long life.

Ordinary term of duration.

Dissections seem to prove that the most frequent variety of consumption is the tubercular: the tubercles consisting of circumscribed nodules or indurations, by Weffer called grandines *, found indiscriminately in all parts of the cellular texture, but more abundantly at the upper and posterior parts. They are at first very minute, whitish and opake, like small absorbent glands, but sometimes more transparent, like cartilage, with black dots in their substance. They augment by degrees till they are half an inch or more in diameter; but in general when they have acquired the size of large peas they begin to soften in the centre, and then open by one or more small apertures into the neighbouring bronchiæ, or remain for a longer time closed, and constitute small vomicæ, containing a curdy half-formed pus. Occasionally they unite into large abscesses †. Now as we have before observed from Dr. Baillie that nothing like a gland is to be found in the cellular membrane of the lungs in a sound state, constituting the seat of these tubercles, and as scrophula selects for its abode a glandular structure, tubercular consumption cannot perhaps with strict propriety be called a scrophulous disease: yet as the untempered fluid contained in the tubercles resembles that of scrophula, and, more especially, as this

Tubercular the most common variety.

Tubercles what? as they appear on dissection.

This variety not strictly a scrophulous disease;

but closely analogous.

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[*] Sepulchr. Boneti per Marget. II. vii.

[†] Young, ut supra.—Portal, Observations sur la nature et la traitement de la Phthisie.—Bayle, Recherches sur la Phthisie pulmonaire. Par. 1810.

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variety of consumption is very generally found in constitutions distinctly scrophulous, the analogy between the two is extremely close, and has often led to a similar mode of treatment.

Apostemes found on dissection.

Catarrhal inflammation found on dissection.

In some cases, proper abscesses or larger vomicæ are found without any trace of tubercles; and especially when the disease has followed rapidly upon peripneumony, or taken place in persons of robust habits or entonic plethora. And, where the catarrhal symptoms have been striking, and, in the increasing hoarseness and free discharge of muculent pus, have evinced extensive inflammation on the surface of the trachea, M. Portal has found the whole extent of the tube lined by a crust resembling bone. In some instances, the lungs, from the accretion of new matter, have weighed not less than five or six pounds, which is nearly four times their ordinary weight; but in others, they have been so reduced as in the language of the same writer to leave "a vacant space" in the chest; or, in that of M. Bayle, to be shrivelled into leather. On this account, breathing would be impossible if it were not that the lungs in a state of health are capable of containing ten times as much air as is received by an ordinary act of inspiration: and hence are capable of losing a very large portion of their capacity without suffocation. In some cases, one lung has been entirely destroyed, and the office of respiration maintained by the remaining lung alone for many years *.

Weight of the lungs sometimes greatly increased: sometimes reduced and the organ shrivelled.

Pus and mucus how distinguishable: but the distinction of no great importance.

Many ingenious experiments have been invented to distinguish between pus and mucus, in order to determine the actual nature of the disease. Such trials may gratify the curiosity of the pathologist, but from the variable, and frequently complicated nature of the expectoration, as well in the most dangerous as in the earlier stages of the complaint, we can derive little as-

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* Boneti Sepulchr. Lib. I. Sect. II. Obs. 167.—Parotti, Raccolti d'Opuscoli scientifici XLVI. p. 275.

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sistance from this distinction. Mr. Hunter, as a test, employed muriate of ammonia, having observed that a drop of pus united with a drop of this fluid is rendered sopy, while neither blood nor mucus is affected by it *. Mr. Charles Darwin

Hunter's test.

Darwin's.

> Heu miserande puer! si quâ fata aspera rumpas
> Tu Marcellus eris—

proposed a double test of sulphuric acid, and a solution of pure potass. If, on the addition of water to pus dissolved in each of these separately, there be a powerful precipitation, the matter made use of is determined to be pus: if there be no precipitation in either, it is mucus. But the simplest and truest character of pus, as was first observed and described by Sir Everard Home is, that it is a whitish fluid composed of globules contained in a transparent liquid: that it does not coagulate by heat; and is only condensed by alcohol. The presence of the globules, as remarked by Dr. Young, may be easily determined by putting a small quantity of the liquid between two pieces of plate-glass. If it be pus we shall perceive, on looking through it towards a candle placed a little way off, the appearance, even in the day-time, of a bright circular corona of colours, of which the candle will be the centre; a red area surrounded by a circle of green, and this again by another of red; the colours being so much the brighter, as the globules are the more numerous and the more equable. If the substance be simply mucous, there will be no rings of colours; though a confused coloured halo may sometimes be perceived by the mixture of mucus with blood or some other material.

Home's definition.

Young's test.

Such is the general history of phthisis. The pathology and practice are in a most unsatisfactory and unsettled state: nor can any thing be conceived more

Pathology and practice unsatisfactory and unsettled.

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* See Apostema commune of the present Volume, p. 251.

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contradictory than the writings upon both these subjects. Boerhaave regarded consumption as a local disease, or conversion of all the blood and chyle into pus by means of an erosive ulcer seated in the lungs: Stahl as a general disease unaffected by pus or any other acrimony. The latter ascribed consumption to the very abundant use of bark which was then prevailing in Europe: while Morton regarded bark as his sheet-anchor in effecting a cure. Consumption, according to Brillouet and many other writers, is identic with scrophula, and is only to be cured by alkalies, corrosive sublimate, or other mercurial alterants, employed for the cure of scrophulous affections *. According to Cullen, though it has an apparent connexion with scrophula, the analogy affords us no assistance in the treatment, and the remedies for the one are of no avail in the other.

View of Boerhaave: as opposed to that of Stahl. Of Stahl, as opposed to that of Morton. Of Brillouet, as opposed to Cullen.

Of Rush,

Dr. Rush contemplated it for the most part as an entonic or inflammatory disease, and particularly in its first stage, though it is sometimes accompanied with a hectic or even a typhous fever. And hence his principal remedies were salivation, or bleeding which he sometimes prescribed fifteen times in six weeks, emetics, nitre in large doses, a milk and vegetable diet, walking in cold air even during an hæmoptysis, and afterwards severe exercise. The hardships of a military life, says he, have effected cures in a multitude of cases of confirmed consumption; and a riding post-man has been relieved more than once by the pursuit of his occupation †. This bold practice excited many followers, and was tried with variable success upon a large scale. But a practice of an opposite kind equally bold, and which soon became equally popular, was proposed at the same time by M. Salvadori of Trent ‡. Consumption, in the view of this

as opposed to Salvadori

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* Journ. de Med. 1777.

† Med. Inquir. and Observ. I. 8vo. Phil. 1789. II. 1793. V. 1802.

‡ Del Morbo Tisico, 2 Vol. 8vo. Trent, 1787.

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pathologist, is an atonic instead of an entonic disorder from the beginning, a disease of direct debility and not of inflammation; and hence is only to be cured by an active plan of stimulants and roborants from the first. The patient's diet is to consist of copious meals of meat and wine, and his chief regimen to be that of climbing hills, or precipitous steeps in the morning as quickly as he is able, till he is out of breath and bathed in sweat, and then augmenting the perspiration by placing himself near a large fire. Mr. May, who adopted the same general principle, seems to have postponed the gymnastic part of the process till the symptoms were alleviated, and to have called in the aid of medicines which Salvadori regarded as superfluous. May's medicinal means were emetics, bark, and laudanum, night and morning; and for diet, he prescribed soup, meat, wine, porter, brandy and water, eggs, oysters, with proper condiments. Swinging was interposed twice a-day; and horse-exercise was to complete the cure [*].

and May.

Many later writers believe consumption to be very generally produced by a habit of drinking vinegar daily to improve the figure: and Desault relates a case in which this effect was produced in the course of a month [†]. Galen recommends vinegar as the best refrigerant we can employ: and Dr. Gregory, in 1794, gave the case of a patient who recovered by using three dozen lemons daily. Dr. Beddoes felt justified in declaring fox-glove a cure for consumption as certain as bark for agues [‡]: Dr. Barton affirms he has never known but one case cured by it, though others may have been palliated [§]: and Dr. Parr asserts roundly that it is more injurious than beneficial [‖].

Of Desault, as opposed to Galen, and Gregory.

Of Beddoes,

as opposed to Barton and Parr,

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[*] Lond. Med. Journ. IX. 1788.

[†] Sur les Maladies Vénériennes, la Rage, et la Phthisie, 12. Bord. 1739.

[‡] Essay on the causes, early signs, and prevention of Pulmonary Consumption, 1799.

[§] Collections for a Materia Medica, 8vo. Philadel. 1798.

[‖] Med. Dict. in verb. Phthisis, Vol. II. p. 401.

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Contradictory, however, as are these statements with each other, they are chiefly so, as being either too highly coloured or too indiscriminate. We have already considered phthisis under three varieties or modifications, chiefly in respect to its being deeper seated or more superficial; the apostematous lying lowermost, the tubercular somewhat higher, and the catarrhal on the surface.

These contradictory views capable of approximation: as the disease evinces different varieties, and in different habits may require very different modes of treatment.

But each of these, as it occurs in different constitutions, or under different circumstances, may exhibit very different symptoms and demand a very different, and perhaps an opposite mode of treatment. And hence most of the principles on which the preceding opinions and modes of practice are founded, may derive authority from particular examples of success; and are so far correct, though, perhaps, none of them will apply to the whole. So considerable, indeed, are the shades of distinction from this multiplicity of causes that every separate case of consumption should be allowed to speak for itself, and must call for much deviation from the widest line of treatment we can ever propose to ourselves under the form of general rules.

Hence every separate case should speak for itself; and lay down its own practice.

Fundamental principles to be attended to in the treatment.

The continuance of the disease when once produced may depend, as we took occasion to observe when discussing the nature of hectic fever *, on the state of the constitution, or on the local irritation; for the hectic may be kept up by either, and so long as this continues we can have no expectation of a recovery. In the first place, the local irritation may be small, while the constitution itself is bad, and does not dispose the parts to a healing condition. And, secondly, the constitution may be good while the local irritation is so considerable that there is not remedial power enough in the former to subdue it.

General intentions that have hitherto guided pathologists.

How far both these principles have been kept in view by pathologists at large in their treatment of phthisis it is difficult to determine, though they ought never to be lost sight of: yet the general intentions by

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* Epanetus Hectica. Vol. II. p. 169.

which they seem to have been guided, in the midst of all the contrariety of practice we have just noticed, are the following :—

I. To take off inflammatory action.
II. To correct the specific acrimony.
III. To support under debility.
IV. To subdue the local irritation and improve the secretion.
V. To excite a change of action.

First intention: to take off inflammatory action.

When the habit is robust, and the symptoms severe,

I. If the patient be of a robust habit and in the prime and vigour of life, and if the symptoms indicate considerable inflammation, whether in the lungs or bronchiæ, such as, in the former case, fixed pain and weight in the chest, increased by lying one side, with a dry but troublesome cough; and in the latter, a general soreness rather than pain in the chest, frequent and violent cough with a copious excretion of a thin, offensive, and purulent mucus; and, in both cases, with a full and strong pulse, the fever, though remissive, making an approach towards a cauma, constituting the plethoric species of M. Portal, and the inflammatory of Dr. Rush, there can be no question that our object in both these cases should be to diminish the vascular action by every mean in our power. Copious bleeding by venesection should be had recourse to with all speed: and though we shall seldom be called upon so closely to follow the steps of Dr. Dover as to repeat the operation fifty times in succession * before we desist, it may be necessary to follow it up rapidly to the third, fourth, or fifth time. M. Portal, in the catarrhal variety, bled a man, seventy-eight years old, three times with the happiest effect. Immediately after the use of the lancet, we should employ small doses of ipecacuan or antimonial powder, so as to maintain a nausea till the pulse is lowered. Where the symptoms approach to peripneumony, the latter is to be preferred; where they lean to an inflammation of the mucous mem-

the actively reducent plan may be expedient and imperative.

Bleeding.

Nauseating.

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* Ancient Physician's Legacy to his Country. 8vo. Lond.

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brane of the bronchiæ the former, of which three or four grains may be given three or four times a-day, and will often prove expectorant, and unload the mucous pellicles of the air-cells. The bowels should, in the mean time, be thoroughly opened by neutral salts or uniting three or four grains of calomel with the nauseating powder: and after this the fox-glove may be had recourse to with a considerable promise of success. Von Helmont first employed this last medicine as a specific for scrophula: but the only specific influence we know it to possess is on the kidneys, and on the action of the heart and arteries. It is for this last effect we look to it in the present instance; the only effect in all probability that renders it of any advantage in consumption. In catarrhal phthisis it seems sometimes, however, to improve the character of the exspuition, and to render it less thin and acrid: but this is, perhaps, a collateral result of the diminished action of the arterial system: for an increased flow of genuine mucus, like that of genuine pus, depends upon only a small augmentation of vascular energy: since, if the vessels be urged beyond this, the secretion is hot, watery and acrimonious.

Aperients.

Digitalis.

Sudorifics.

If sudorifics be ever advisable in any modification of phthisis, it is here we may expect to find them of use. Bennet indulged the hectic morning sweats as a mean of abating the symptoms, and Morton observes that nothing is gained by checking them. But it is perfectly clear that they very greatly add to the debility, and never prove critical. It has been proposed by others, however, to overcome the morbid sweats by exciting a sweat of a different kind: "for it is as practicable," says Mr. Watt, "to cure sweating by sudorifics, as diarrhœa by cathartics *." There is something plausible in this remark, and the experiment might, perhaps, be allowed to form a part of the reducent plan before us. But the author has never tried it, and even in the state of

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* Cases of Diabetes, Consumption, &c. 8vo. Paisley, 1808.

Gen. III. Spec. IV. Marasmus Phthisis. Consumption. Treatment. First intention. Mild diaphoresis preferable to drastic sweating, afterwards cooling neutrals: and when necessary narcotics.

the disease we are now contemplating, he would prefer mild diaphoretics or relaxants to drastic sudorifics.

When a sufficient inroad has thus been made upon the inflammatory diathesis, we may content ourselves with an administration of the cooling neutrals, of which nitre is one of the best. It may be given in almond emulsion in the proportion of a scruple to half a pint; and, if the cough be still troublesome, may be conveniently united with some light narcotic, as the extract of hyoscyamus or white-poppy. The diet and general regimen are points of great importance; but upon these we shall have to speak presently.

Phthisis rarely thus violent in its attack.

It is not often, however, that phthisis commences with the inflammatory action we have thus far contemplated *. Its ordinary march is unostentatious and insidious; and it takes possession of the fair and delicate, rather than of the firm and athletic frame, and chiefly in those possessing this figure who can trace it in their ancestors and have hence reason to apprehend an hereditary taint.

Second curative intention. To correct the specific acrimony.

How far the specific treatment for scrophula applicable to the tubercular variety.

II. Of the proximate cause of this predisponent diathesis we know nothing: it is generally supposed to have a near analogy to that of scrophula; and when called into action it commonly shows itself in the form of the tubercular variety: the tubercles themselves, though not occuring in a structure strictly glandular, bearing a considerable resemblance to scrophulous indurations. And, on this account, as there are various medicines, and a particular regimen that seem to have a beneficial effect upon a scrophulous habit, the same have been often resorted to for the cure of consumption. Thus, sea-water, the alkalies, almost all the metallic salts, and especially those of mercury, have been repeatedly tried, but apparently with very doubtful success. Mr. Spaldin, in the American Medical Repository, gives the case of a patient who had taken nearly two pounds of potash and soda, in-

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* See Epanetus Hectica, Vol. II. p. 169.

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termixed like common salt with his ordinary food, and, he states, with considerable benefit after fox-glove, sulphuric acid and bitters had been successively found to disagree *; and Dr. Trotter affirms that among seamen in scrophulous consumption, as he calls the tubercular, salt and salt diet, have proved of eminent service, but that the most effectual remedy is cinchona with sulphur †.

Mercury.

Yet, however serviceable such medicines may have been found in the particular cases recorded, they have not succeeded in ordinary practice. "In scrophula," says Dr. Cullen, "the remedies that are seemingly of most power are sea-water and certain mineral waters, but these have generally proved hurtful in the case of tubercles of the lungs. I have known," he adds, "several instances of mercury very fully employed for certain diseases in persons who were supposed at the time to have tubercles formed, or forming in their lungs: but though the mercury proved a cure for those other diseases, it was of no service in preventing phthisis, and in some cases seemed to hurry it on ‡."

Metallic salts tried generally but without success.

Nor have any other metallic salts been of more use than those of mercury. Dr. Roberts has had the spirit and perseverance to run through the whole range of such of them as can in any way be thought applicable to this complaint; and has also had the candour, after a sufficient scale of trial in St. Bartholomew's, a candour how seldom to be met with, to confess that none of them were administered with success. The experimented list consisted of silver in its nitrate; lead in its superacetate, combined with opium for counteracting its deleterious effects; zinc, in its sulphate and oxyde; and the precipitate from the sulphate of potash, combined with myrrh; arsenic in the neutral salt formed by a combination with potash; manganese in its white

Of silver: Lead: Zinc: Arsenic: Manganese:

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* Vol. v. p. 220.

† Medicina Nautica. Vol. III. p. 359.

‡ Pract of Phys. Vol. II. Sect. DCCCCVII.

GEN. III. SPEC. IV. Marasmus Phthisis. Consumption. Treatment. Second intention. Cobalt: Copper: Barytes: Vegetable narcotics.

oxyde, in doses of ten grains every six hours; cobalt in its black oxyde, in doses of from one grain to four; ammoniated copper; and muriate of barytes. And with a like want of success, he tells us in addition, were employed the vegetable narcotics, aconite, hyoscyamus, stramonium, belladonna, as also toxicodendron *. We may hence, I think, fairly conclude with Dr. Cullen that, "the analogy of scrophula gives no assistance in this matter †."

Tartarized antimony in diluted doses:

This part of our subject, however, ought not to be closed without briefly adverting to the practice which has lately been adopted by some pathologists, of giving very small doses of antimony in the form of tartar emetic dissolved in a large body of some simple menstruum and continuing it for an almost indefinite period of time: but whether this be recommended with a view of destroying any specific acrimony, or of allaying general irritation, I cannot determine. Dr. Balfour dissolves two grains of the emetic tartar in six ounces of water, and prescribes an ounce of this mixture, that is, a third part of a grain of the tartarized antimony, to be taken every hour, and a smaller quantity where this is found to nauseate. M. Lenthois, in his Methode Preservatif, apparently with a view of imitating the great processes of nature in her manufacture of those metallic and other mineral waters which have been taken with most success, gives it in a far more divided state, and consequently with a much larger quantity of menstruum. He first dissolves a grain of tartarized antimony in eight table spoonfuls of distilled water, and then adds to the entire mixture six or eight pints of water in addition, and sometimes not less than twelve. The solution thus weakened is employed by the patient for common drink in every case and stage of consumption, either alone or with some other drink at meals, or occasionally with wine; it is taken without limitation at all seasons and hours.

as prescribed by Balfour:

by Lenthois.

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* Med. Trans. Vol. IV. p. 129.

† Pract. of Phys. Vol. II. Sect. DCCCCVII.

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How far this method may answer I cannot say from personal practice: but the success of M. Lenthois is rendered suspicious from its pretended extent; for he hereby prevents the disease, as he tells us, if it be not begun, and cures three out of four where it is.

Third curative intention. To support under debility.

III. But though in consumptions we can avail ourselves but little of the treatment that applies to scrophula, and know nothing whatever of the nature of its specific acrimony or miasm, we see enough to convince us that consumption, in its general character is, like scrophula, a disease of debility: and that wherever it exhibits an excess of vascular action, it is merely in consequence of being planted upon a plethoric or entonic temperament. And hence another principle, conspicuous in most of the remedial plans to which it has given birth, is that of supporting the system while labouring under its influence.

An important principle, but of difficult application.

This principle is well founded but of difficult application; and, like the opposite principle of reduction, has been often carried to an extreme. In its ordinary course, the disease is not only peculiarly prodigal of animal strength, but peculiarly protracted in its duration, while the fever, though remissive, rarely subsides altogether, or allows any interval of which we can avail ourselves.

In some instances the remissive intervals nearly apyrectic: and the hectic converted into an intermittent.

In some instances, however, it does allow such interval, and especially where it has continued for a long period, and has broken down the general vigour of the frame; in which case Moreton occasionally found the inflammatory form with which it commenced converted into a low intermittent, sometimes assuming the quotidian, but more generally the tertian type; beginning with cold fits, and succeeded by intense heat and profuse sweats which exhausted the patient, though they left him in high spirits during the intermissions *. And in such cases, it is possible that the tonic and stimulant plan of bark, wine, and even high-seasoned dishes, with cold

Direct tonics may have been here sometimes employed with success.

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* See Epanetus Hectica, Vol. II. p. 169.

air, cold bathing, and active exercise, so warmly eulogized by many writers, may occasionally prove successful, and particularly where the disease is of the apostematous or catarrhal variety, and there is no constitutional taint to oppose at the same time.

Treatment. Third intention.

But this must not form a general practice; and must often yield to another course.

But this is a plan which cannot be brought into general practice; and, in supporting the strength of the system, we are ordinarily compelled to pursue a very different course.

The strength may be supported by negative means.

The first mean by which we are to aim at accomplishing this is of a negative kind; and consists in saving the frame as much as possible from the profuse exhaustion it is daily sustaining, by calming the febrile irritation, and checking the colliquative sweats, which, as already observed, are never of a critical kind.

"I have sometimes succeeded very decidedly," says Dr. Young in a note to the author, while the present sheet was printing, "in checking the sweats by Dover's powder: but I do not know that the progress of the disease has been much retarded by this palliation."

Bleeding rarely allowable in a delicate frame.

Bleeding, however plausible, and even advantageous when the pulse is full and strong, and the pain in the side acute, can rarely be allowed when the frame is delicate and irritable, and the pulse small and weak. Where the local distress is considerable, it may be had recourse to as a palliative, but never carried beyond a few ounces, nor repeated without great hesitation.

Emetics less objectionable: and vomiting preferable to nauseating.

To emetics there is less objection, but vomiting is here to be preferred to nauseating. The latter, though it lowers the pulse, produces considerable fatigue and distress. The former emulges the bronchial glands, and diminishes the local irritation by transferring it through the means of a general glow and moisture over the system at large. The dose may be repeated three or four times a week, and should have its power limited as nearly as may be to a single inversion of the stomach.

Emetics to be selected with judgment.

In the selection of emetics some judgment is required, for those should be carefully avoided, which, like the antimonial preparations, produce loose evacuations, and

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excite considerable sweating. The ipecacuan is perhaps one of the simplest and the best. Dr. Simmons, however preferred the sulphate of copper, giving first of all half a pint of water to the patient, and then the blue vitriol from two grains to twenty, according to his age and strength, dissolved in an additional cup-full of water. In general, he found that the moment the emetic reached the stomach it was thrown up again, upon which the patient was ordered to swallow another half pint of water: which was sufficient to take off the nausea*.

Fox-glove objectionable in delicate and irritable habits:

as are most of the narcotic umbellatæ and solanaceæ.

Neutral salts useful:

but should be given considerably diluted.

The reason that prohibits nauseating, prohibits also the use of fox-glove: for, though the pulse may be diminished, nothing more is obtained, and even this is obtained at too great an expense of sensorial power in the degree of debility we are now contemplating: and the remark will apply to most of the narcotics, whether of the umbellate or solanaceous orders. The neutral salts answer better, and especially nitre; and there is no modification of the disease in which this may not be given, and will not prove an excellent refrigerant as well as sedative. The general error, however, has been in administering it too freely, as in doses of fifteen grains or a scruple; in which case, it becomes a direct irritant, and does much more harm than good. Seven or eight grains at a time, as already prescribed, is a far better proportion, and even in this quantity it will answer best if considerably diluted. It is often united with narcotics; but these are never found of use unless to palliate the cough or local distress; for otherwise they increase the heat and quicken the pulse.

Acids often highly serviceable.

Vegetable preferable to mineral:

Most of the acids may also be employed for the same purpose, and with equally good effect. They may, indeed, be regarded in the joint character of sedatives, refrigerants, and astringent tonics; and have hence every claim to attention. The mineral have been most commonly in use; but, from their erosive quality, they cannot be thrown in sufficient abundance into the circulating fluids: and on this account the vegetable are to be preferred; and, of the vegetable, the fermented acids, which, though somewhat less grateful than the native, seem to be more effectual as tonics. The acetous acid was employed freely by Galen, diluted with water, who regarded it as the best refrigerant we can select. It is continued to the present day among the Moorish physicians at Tunis, and, according to the late M. Orban, with decided success. He observed its effects, during three months, upon one patient who appeared to be labouring under a confirmed phthisis from a neglected catarrh. The quantity of vinegar drunk in the course of every twenty-four hours was seven fluid-ounces intermixed with seven times as much rain-water, and sweetened with two ounces of refined sugar. This apozem was accompanied with astringent and tonic pills composed chiefly of alum and sulphate of iron, of each of which two grains and a half were taken daily. The diet allowed was very slender, and consisted of nothing more than vermicelli or millet, boiled in water, and seasoned with a little oil and salt. Of this, only two meals in the four and and twenty hours were allowed for several weeks. And, on the patient's becoming very costive under its use, the Moorish physician paid no attention to the symptom, but told M. Orban, that a constipated state of the bowels was the best symptom that could occur, and that the more strikingly this prevailed the more certain he was of a cure. M. Orban left this patient in a state of convalescence bordering on perfect health; and, on his return to France, pursued the same plan, with the exception of the iron, which he omitted as too stimulant, and found it, in many cases, eminently successful, though not in all *. It has since been tried in our own country and has often proved equally advantageous. Dr. Roberts has paid particular attention to its effects; and, upon a pretty extensive scale, has been satisfied with them. One of his cases was of a

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* Practical Observations on the Treatment of Consumption, &c.

Gen. III. Spec. IV. Marasmus Phthisis. Consumption. Treatment. Third intion. especially the fermented. Acetous employed by Galen, still employed by the Moorish physicians. Its success as observed by Orban.

Tried with success by Orban himself.

In our own country by Roberts.

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* Med. Trans. Vol. v. Art. xviii.

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very unpromising aspect; and consisted of a young gentleman, seventeen years of age, whose elder brother had died of phthisis two years before. The cough, which, in the morning was very considerable, was accompanied with expectoration sometimes streaked with blood; a confirmed hectic preyed upon him, and the night sweat was so profuse that his hair was drenched with it. "My patient," says Dr. Roberts, "was *at once* relieved by the use of the acid, and, in a short time, so lost his complaints, that, by my advice; he discontinued the remedy *." The acetic and acetous acid seem to have been employed indiscriminately; over which the citric, which was also tried, did not seem to have any advantage. The acetous was usually given in half ounce doses with an ounce of infusion of cascarilla, and a little mucilaginous powder or syrup, the dose being repeated three or four times a day.

Summary of its beneficial effects.

From these facts, as well as from a host of others of the same kind that might be adduced, the acetous acid appears to be a powerful sedative. It diminishes action generally, checks night sweats, restrains hæmoptysis, retards the pulse, and produces costiveness. It becomes, hence, necessarily a refrigerant; and it is probable that its refrigerant depends entirely upon its sedative power. That it is also an active astringent is known to every one; but this seems to be a distinct quality; for simple astringents, as bistort and catechu have no pretensions to be sedative; and the metallic salts, with the exception of those of lead, are directly stimulant. On account of this sedative quality, vinegar, when drunk in abundance, where there is no morbid excitement to suppress, becomes often highly mischievous: for, by unduly taking off the action of the assimilating powers, it prevents the secretion both of flesh and animal oil, and hence produces emaciation or a slender form; and is at times expressly resorted to for this very purpose by young and thoughtless females who are afraid of becoming too corpulent. This

Mischievous when no morbid excitement: and why?

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* Med. Trans. ut suprà.

effect also is often ascribed to its astringent quality, yet improperly; for it is the character of astringents to increase the solid contents of the frame, and give breadth as well as firmness to the muscles. In hæmoptysis, I have carried the use of acetous acid much farther than was prescribed by Dr. Roberts, and with manifest and unmixed advantage.

Proper astringents rarely serviceable.

The proper astringents have also not unfrequently been employed in phthisis for the same negative purpose of producing strength by checking the exhausting discharges of sweat, pus or mucus, blood, and often diarrhœa; but they have rarely proved successful. Some degree of benefit seems occasionally to have been derived from the use of oak-bark, several of the agarics * given in the form of lozenges, and the superacetate of lead †; but they have far more generally been employed without success or with more mischief than advantage.

Exemplified in oak-bark: agarics: lead.

Tonics combining an astringent and a bitter principle,

The most direct means of supporting the system would be by those tonics that unite an astringent with a bitter principle; but we have already observed that the system is usually, and particularly in the beginning and at the height of the disease, in too high a degree of irritation for a convenient use of any medicines of this kind: though where the complaint has lasted for many months, and appears to be rather of the tubercular, or catarrhal, than of the apostematous variety, these may sometimes be employed with great success. The Angustura bark generally agrees better than the cinchona, and to this myrrh and iron may at such times be added in increasing doses, and particularly as prepared in the mistura ferri composita of the London College. In the tubercular variety, the cinchona seldom agrees in any stage: Dr. Cullen conceives never; and tell us that even where the disease has assumed something of an intermittent character, quotidian or tertian, and he has, on this account been tempted to try it in free doses, he has

more useful in a late stage of the disease than at the beginning. Angustura bark often agrees and especially in the tubercular variety: the cinchona seldom or never.

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* De Haen, Rat. Med. Tom. II. 567. Dufresnoy, in Corvisart, Journ. Med. Cent. VII. 531. 1804.

† Ewell in Sédilc. Journ. Gen. Med. XLIV. Hildebrand, id. XXXVI.

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in no instances succeeded so as to establish a complete cure. "For in spite," says he, "of large exhibitions of the bark, the paroxysms in less than a fortnight or three weeks after they had been stopped, always returned, and with greater violence, and proved fatal. In the latter stages of the apostematous variety, and especially when the vomicæ are small and in perpetual succession, he thinks, however, it may be of service, in restoring a healthy action, and promoting a secretion of genuine pus.

Cold bath.

In this last case, and here perhaps only, we may venture with success on the use of the cold bath. In a more irritable state or stage of the complaint, the tepid bath may occasionally prove serviceable; and, where it does so, should be repeated three or four times a week, or even oftener. Of the effect of the *banos de* tierra of the once celebrated Solano de Luque I cannot speak from personal knowledge. It consists in burying the patient up to the chin in fresh mould. It would be most obvious to suppose that this was designed to act as a tonic, and check the undue tendency to perspiration by a protracted chill, but that Van Swieten tells us the smell of fresh earth is serviceable, and approves of it on this account. It has since been recommended by Dr. Simmons and M. Ponteau.

Banos de tierra or earth-bath.

Diet and regimen.

Before, however, the hectic, or the general irritability of the system has so far subsided as to render tonics advisable, our chief dependence for giving support to the system must be upon diet and regimen.

Food light and with long intervals.

The diet should be of the lighest kinds, and in very small proportion, or with long intervals of rest; for some degree of exacerbation, in the stage of the disease we are now contemplating, is always produced by the process of digestion. Under limosis *expers* we have already seen how very small a portion of food is necessary for the support of life, when neither mental nor muscular exercise are made use of; and, though hectic fever itself is a source of very great exhaustion, this exhaustion will be less in proportion as we produce less excitement, whether from eating or any other cause. And hence

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the most cautious physicians, from the time of the Greeks to our own day, have concurred in recommending food in small quantity as well as of the lightest materials. It is not merely the stomach and its collatitious organs that are hereby put at rest, but the circulating system, the assimilating powers, the brain, and the intestines. And hence there was much judgment in the remark of the Moorish physician to M. Orban in the case just adverted to, in which the diet was peculiarly reduced and slender, that costiveness, so far from being an evil, was one of the most promising symptoms that could occur, and which rarely required any attention. It gives proof in reality, that the secernents of the larger intestines are quiescent, that the lacteals have absorbed nearly the whole of the materials introduced into the stomach, and that there is scarcely any refuse matter to irritate afterwards, or be carried off in the form of feces.

Food principally milk and the farina of plants.

The food itself should consist principally of milk and the farinaceous parts of plants, if it be not limited entirely to these: and upon a diet of this kind, in conjunction with temperate air and exercise, the Greek physicians placed their only hopes of a cure. Whether it be necessary to pay that strict attention to the different kinds of milk which we find in many writers of established reputation I cannot fully determine. Galen recommends woman's milk, as lightest of all, then ass's, next goat's or ewe's, and lastly cow's[*]; and Van Swieten adopts the recommendation of Galen[†]. Mare's milk has since been proposed as preferable to all these: but the analyses published by different chemists vary so much from each other, that it is difficult to come to a conclusion. If the experiments of Stipriaan may be depended upon, mare's milk contains most sugar and least cream, butter or caseous matter; and woman's milk most sugar and least butter and caseous matter next to mare's, with most

What milk most nutritious and least heating.

Analysis of Stipriaan.

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[*] Opp. Tom. VI. 130, 131. edit. Basil. 1542.

[†] Comment. Tom. IV. Sect. 1211. edit. Lugd. Bat. 1764.

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cream next to sheep's*. Whence mare's milk should be the lightest of the whole, but less nutritive than woman's. According to Parmentier, however, ass's milk contains a less proportion of caseous matter than any of the rest.

Peculiar properties of milk communicable by the food fed upon.

Peculiar properties may sometimes be given to milk by the food fed upon; and hence Galen endeavoured to render it more astringent by placing the animal, that was to furnish it, in pasturage, enriched for the purpose with agrostis, lotus, polygonum, and melyssophyllum. And as the patient became convalescent, and could bear a richer nutriment, he was allowed to sail down the Tiber and use the cow's milk of Stabíæ, which was peculiarly celebrated for its excellence.

Artificial ass's milk.

When ass's milk cannot conveniently be obtained, its place may be supplied with what has been called artificial ass's milk, which is a mixture of cow's milk and animal mucilage, diluted in a farinaceous apozem, rendered slightly sweetish and aromatic by eryngo. The ordinary form consists in boiling eighteen contused snails with an ounce of hartshorn-shavings, of eryngo-root and pearl-barley, in six pints of water to half its quantity, and then adding an ounce and a half of syrup of Tolu. Four ounces of this are usually taken morning and evening with an equal quantity of fresh milk from the cow†.

Vegetable mucilages.

The chief foods which have been allowed in the general treatment of consumption in its earlier and middle stages, in conjunction with milk and the farinacea, are the vegetable and animal mucilages, but particulary the former. And of these that obtained from the Iceland

Liverwort.

liverwort, has been held, and deservedly so, in the highest degree of estimation; for to an aliment of sufficient nourishment it adds a tonic power by its bitterness; yet a power that so far from increasing vascular action seems rather to quiet it; as though the bitter principle

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[*] See Crell's Chemische Annales, § VIII. p. 138. 1794.

[†] Med. Trans. Vol. II. p. 341.

were itself in possession of something of the sedative quality of the hop, Ignatius's bear, or some other plant that decisively unites the two.

Were it not, however, that every thing seems to be valued in proportion to the distance of its growth and the difficulty and expense of acquiring it, it would not be necessary for us to go to the Arctic circle in quest of liverworts, as there are several species indigenous to our own country that have all the good qualities of that of Iceland, and in an equal degree: particularly the lichen *cocciferus* or *pyxidatus*, commonly known by the name of cup-moss. This was long ago recommended in hooping-cough by Willis; as it has since been employed in hectic affections by Strack; and by Van Woensel in both phthisis and hooping-cough, and apparently with considerable success *. The lichen *pulmonarius*, lungwort or lungmoss, common to most parts of Europe, and our own country among the rest, has also occasionally been made use of for the same purposes. It is, however, less mucilaginous than several other species, and so bitter as to be disagreeable to the palate, and in some places, and especially in the Siberian variety, to be employed as a substitute for hops. It requires on this account a longer maceration in water for extracting the bitter principle before it is used.

Various indigenous liverworts may be employed as substitutes.

In supporting or recruiting the strength, a due attention to air and exercise is also of high importance. The advantages offered by the first are those of a mild, dry, and equable atmosphere; and probably these are the whole. If the patient's own country give him these, he need not wander from home. If it do not he must create an artificial atmosphere in his own chamber, or set of chambers, by keeping the thermometer at from 60° to 65° of Farenheit, and confining himself to this temperature; or he must seek the atmosphere he stands in need of in a foreign climate. The disadvantage of

Mild dry and equable atmosphere.

Produced artificially.

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* Hist. de la Societé Royale de Medicine. II. 295.

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the former is that though he may support the requisite temperature, he cannot conveniently obtain a sufficient change of air, nor so well avail himself of the various exercises that might be useful to him, as if he were at liberty to go abroad.

Obtained by a change of residence.

Hence a change of abode has been recommended in all ages to those whose native soil is subject to considerable and sudden atmospherical variations, though pathologists have by no means agreed upon a meteorological standard. For the patient's residence in our own country, the south-western boundary of the Cornish coast, and particularly Penzance, seems to offer the best asylum; and where a foreign climate is recommended it should lie between thirty and forty degrees of latitude; if lower than this, the disease, and especially where ulceration has taken place, seems to be exacerbated instead of diminished; and consequently its fatal issue to be quickened*; notwithstanding that to the natives consumption is little known within the tropics.

Latitudes best adapted.

Often tried in vain from being tried too late.

Generally speaking, a change of climate or of local situation has been determined upon too late; and hence has not been attended with all the benefit that might otherwise have been reasonably hoped for. On which account, many pathologists have considered it as of little importance, if not more injurious than staying at home, though the most celebrated spots should be selected.

Hence almost every plan disapproved of by many pathologists.

Thus Dr. Carmichael Smyth asserts that Madeira is unfavourable to the consumptive when the lungs are materially injured, notwithstanding the mildness and equability of its climate†. Nice and Naples are said to be equally unfriendly from the neighbourhood of mountains; and Dr. Southey's inquiry has led him to conclude that in Malta, Sicily, and other islands in the Mediterranean, phthisis, though a rare disease among the natives, does not appear to be retarded in those who visit them for a cure*. M. Portal dissuades from all such trials by affirming that there is no dependence to be placed upon them, since he has seen the disease accelerated in Englishmen, or those of other northern nations, by a visit in quest of milder air to the south of France; whilst in the natives of Languedoc or Provence it has been restrained by a removal to Paris†.

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* Sir G. Blane, Observations on the Diseases of Seamen, 8vo. 1785.

† Account of the effects of Swinging in Pulmonary Consumption, &c. 8vo. 1787.

Great judgment necessary in adjusting the proper situation to the state and stage of the disease, and the patient's constitution.

The whole of this, however, only shows us that very great care is necessary in determining concerning the state and stage of the disease, the patient's constitution, and the local features of the situation that may be proposed for his residence. Where, in the commencement of the disease, there is great irritability, or an inflammatory diathesis; or in its advance the strength of the constitution is greatly reduced; and especially where an obstinate diarrhœa has supervened, the fatigues of journeying and of a sea-voyage, and the necessary relinquishment of many of those minuter, but still important conveniencies, to which the patient has been accustomed at home, will more than counterbalance for all the advantages he might derive from the possession of a milder and more equable atmosphere. The topography of the situation about to be chosen is of equal importance; for if it be strongly marked by lofty cliffs or mountains, the air will seldom circulate freely, but rush in currents in some parts, and be obstructed and become stagnant in others. Such is the state of Hastings on the Sussex coast of our own country, which would otherwise form an excellent asylum for those who are subject to pulmonary affections, and cannot remove far from their native abodes. The shore is skirted by two enormous cliffs of sand-stone that rise between two and three hundred feet in perpendicular height. The old town is built in a deep ravine opening towards the north-east, that lies between them,

Residence not advisable where high cliffs or mountains.

Topography of Hastings.

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* Observations on Pulmonary Consumption, 8vo. 1814.

† Observations sur la nature et le traitement de la Phthisie pulmonaire, II. p. 358.

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and the new town immediately under the cliffs, fronting south and west: and hence, while the air is rushing in a perpetual current through the former, it becomes stagnant, heated and sufficative in the latter. On this account, it has uniformly been found that small islands without any great boldness of feature, enjoy the most equable temperature, and, when within the range already pointed out, form the most favourable situations for consumptive cases. Madeira is, upon the whole, the best foreign station in the winter season; but from its mountainous face catarrhal affections, and even genuine consumption itself, are, according to Dr. Gourlay, not uncommon to the natives; and in removing to it, therefore, it will be necessary to select a spot of sufficient elevation, and equally sheltered from the meteorological evils of currents, tempests, and suffocative heat.

Madeira the best foreign winter station.

Temperature of sea-air itself the most equable:

For the reasons just stated, the most equable of all temperatures is that of the sea itself: and hence many patients, who feel inconvenience from a residence on the sea-side, are almost instantly relieved by sailing at a few miles distance from it. This has often been resolved into the exercise of sailing, or the sea-sickness which in many instances is hereby excited. It is, nevertheless, a distinct advantage from either, and resolvable into the explanation just stated.

and hence often found peculiarly beneficial without sea-sickness.

Sea-sickness often serviceable.

Sea-sickness, however, is of unquestionable service in many cases: and particularly in those in which a protracted nausea by other means has already been recommended. The exercise of sailing is useful on another and a very different account. All motion without exertion, or with no more exertion than gives a pleasurable feeling to the system, which the Greeks expressed by the term æora, instead of exhausting, tranquillizes, and proves sedative. It retards the pulse, calms the irregularities of the heart, produces sleep, and even costiveness. Hence sailing on the Tiber was a common prescription among the Roman physicians; and many consumptive patients have found great benefit from long voyages, in which they have suffered no sea-sickness, and have been

Advantages of sailing, or other kinds of motion without exertion: forming the æora of the Greeks.

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exposed to many varieties of atmospherical temperature. Hence, too, the well known advantage of exercise in a swing, or in a carriage, on horseback, or even on foot, as soon as these can be engaged in with comfort: the organs of respiration, like those of every other kind, deriving strength, instead of weakness, from a temperate use of them.

Swinging; carriage-exercise; horse-riding.

Gymnastic medicine often carried to an extreme.

As by Sydenham: Hoffman: Baglivi.

Gymnastic medicine, however, seems by many pathologists to have been carried to an extreme; and especially by Sydenham, who employed horse-exercise in all stages of the disease, and roundly affirms that neither mercury in syphilis, nor bark in intermittents, is more effectual than riding in consumptions *. Nor is carriage-exercise, says he, by any means to be despised though not equal to that of the saddle. Hoffman, and Baglivi adopted the same opinion, and laid it down in terms nearly as unqualified. Where phthisis is a secondary disease, and dependent upon some obstruction of the digestive viscera, exercise of this kind may, in many instances, be employed as an important co-operation with other means even from the beginning; and to such cases of consumption Desault judiciously limits it. In the present day it has been revived by Mr. Stewart under a variety of ingenious modifications, and appears in many cases to have afforded relief: but the constitutions of mankind must strangely have altered since the days of Sydenham, if the severity of horse exercise could at that period have been employed as a specific remedy in consumptions of every kind. Stoll did not find it so in the middle of the last century; for he tells us that if a consumptive patient mount his horse he will ride to the banks of the Styx as surely as if he were in a pleurisy. And Stoerck died consumptive though in the habit of riding, killed by an hæmoptysis apparently produced by this exercise ‡.

How limited by Desault.

Fourth curative intention. To improve the secretion from the lungs.

IV. Another part of the curative process in the dis-

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* Opp. p. 629.

† Nat. Med. I.

‡ Quarin, pp. 162, 103.

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ease before us, has consisted in endeavouring to subdue the local irritation, and improve the secretion from the lungs. This has been chiefly attempted by fumigations, medicated airs, and expectorants.

Fumigations of aromatic herbs.

Bennet was strongly attached to the first of these, and thought they proved peculiarly detergent, and enabled the patient to throw up a more laudable discharge with increased facility. He sometimes employed aromatic herbs which were immersed in hot water, over which the patient held his head surrounded with clothes to confine the vapour, which was thus inhaled with every inspiration. But he seems to have placed more dependance on an inhalation of the fumes of various terebinthinate resins, as frankincence, styrax, and turpentine itself, mixed into a powder or troche with a few other ingredients, and burnt on coals: to which he sometimes added a considerable proportion of orpiment. And such was the success ascribed to this practice, that Willis, not many years after, resolved the greater exemption of certain parts of England and Holland, from coughs and consumptions, to the turf and peat fires which the inhabitants were in the habit of using, and the arsenical principle which was intermixed with the material. In our own day, terebinthinate fumigations have been very extensively tried in consequence of the warm recommendation of Dr. now Sir Alexander Crichton, who thought he had perceived great and decisive advantage from the aroma of pitch and tar diffused through rope manufactories, ships, and other places where these articles are in perpetual use. I have tried this repeatedly by heating a tin vessel of tar over an oil or spirit lamp, and thus impregnating the atmosphere of the chamber with the powerful vapour that arises. In doing this, however, we must be careful not to burn the tar; for in such case the room will be filled with an empyreumatic smoke that will greatly add to the patient's cough instead of diminishing it. In those states of the disease in which terebinthinates, as myrrh, benzoin, or copaiba, may be taken internally with a prospect of success, this kind of

Of terebinthinate resins, and mineral exhalations.

Fumigation from tar.

Internal use of myrrh: benzoin and copaiba.

fumigation will sometimes prove useful also: and it is hence far better adapted to the tubercular and catarrhal than to the apostematous variety. In a chronic state of both the first, I have sometimes thought it serviceable; but I have more frequently used it without any avail.

Pneumatic medicine. Oxygene gass.

Pneumatic medicine, which, about thirty years ago, was in the highest popularity, does not appear, when candidly examined, to have been more successful. Oxygene gass has, in almost every instance, proved so stimulant, and so much increased the signs of inflammatory action, that though it has seemed occasionally to afford a momentary relief in a few cases, it has rarely been persevered in more than a fortnight, by which time it has often suppressed the usual expectoration, and produced an hæmoptysis *.

Hydrogene gass.

There was much more reason and ingenuity in recommending an inhalation of hydrogene intermixed with common air than of oxygene: since the effect of this gass in destroying the irritability of the living fibre is known to every one; and it was hence a plausible conjecture that by being applied immediately to the seat of disease it might sufficiently subdue the inflammatory impetus, change the action of the ulcerated surface, improve the secretion, and annihilate the hectic. The experiment has been tried at home and abroad upon a pretty extensive scale, by employing different proportions of hydrogene, so that the patient has twice a-day breathed from a pint to a quart of the gass at a time, diluted with from twelve to six times its measure of common air; and making every allowance for an exaggeration of statement in those who have most warmly engaged in the practice, it seems difficult not to concede that it has proved serviceable in various cases.

On what principle useful.

A combination of hydrogene with common air seems, indeed, to be beneficial in various other modes of application; but whether by lowering the ordinary stimulus of common air or by directly decomposing and exhausting

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* Fourcroy, Annales Chirur. IV. p. 83, 1790.

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Gass of coal-mines.

the nervous fluid communicated to the lungs it is not easy to determine. In either way, however, it has an equal tendency to indispose them to inflammatory action. Thus Clapier, in the Journal de Medicine, relates a case of confirmed consumption cured by an habitual residence in a coal-mine [*]; and expressly states that the matter expectorated soon began to assume a more healthy appearance, and was excreted more freely. It is, in like manner, a common remark that the miners in Cornwall are more generally exempt from phthisis than most other persons [†]: and that butchers, who are perpetually engaged in slaughter-houses, and surrounded by a vapour impregnated with hydrogene, possess an equal emancipation. It is probably to this cause, if to any, we are to ascribe the benefit which Bergius found consumptive patients derive from a residence in cow-houses [‡], and which was not long since a fashionable mode of practice in our own country.

Exhalation of slaughter-houses:

of cow-houses.

Expectorants and demulcents.

Expectorants and demulcents have, also, very generally been employed for the same purpose; that of subduing the disease by exciting a healing action in the tubercles or ulcerations, indicated by an improvement in the expuition.

Of the general nature and mode of action of these classes of medicines, we have already spoken at large in discussing the treatment of cough and asthma [§]; and our remarks, therefore, upon the present occasion will be but few.

Where the irritation is considerable, and accompanied with much increase of vascular action as in the commencement of the apostematous and catarrhal varieties, the best demulcents, and, indeed, the only medicines of this kind we can employ as palliatives, are the vegetable mucilages, as of tragacanth, quince seeds or gum Arabic.

The best demulcents vegetable mucilages:

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[*] Journ. Med. XVIII. 59.

[†] Southey, Observations on Pulmonary Consumption, 8vo. 1814.

[‡] Neue Schwed. Abhandl. 1782. P. III. p. 298.

[§] Vol. I. pp. 520. 567.

Treatment. Fourth intention.

Where it is necessary to diminish the general action, these may be united with small doses of ipecacuan, or of squills; which have the double power of exciting nausea, and unloading the mucous follicles of the bronchiæ as expectorants. And, where the cough is very troublesome, and the pain acute, they should be united with narcotics, as opium or hyoscyamus.

sometimes with the nauseating expectorants.

In a more advanced stage of the disease, and through the entire course of the tubercular variety, except where hæmoptysis is present, the expectorants more properly so called have often been employed with advantage. One of the oldest of these is sulphur, and perhaps one of the best; from its not readily dissolving in the first passages, it is carried to the rectum, and the skin sometimes, with little alteration; and hence gently stimulates both extremities, loosens the bowels, and excites a pleasing diapnoe on the surface. It is in this way it appears to be serviceable in an inflammatory or tubercular state of the lungs. It was in high repute among the Greek and Roman physicians, who, when employing it as an expectorant, usually combined it with yolk of egg; and it has maintained its character to the present day. In the tubercular, or scrophulous variety, as it is often called, it has frequently been united with some other preparation, as diaphoretic antimony, with which it was joined by Hoffman, dulcamara by Videt *, and cinchona by Dr. Trotter †.

Sulphur.

The vulnerary balsams and resins, however, have been more generally had recourse to; but ought rarely, perhaps never, to be employed in an early stage of the disease. Their action is common, and depends upon their possession of a terebinthinate principle; and hence they might be used indiscriminately, but that some of them are less stimulant and heating than the rest. Myrrh and camphor are among the least irritant, and may often be employed when we dare not trust to any other. Co-

Balsams and resins.

Myrrh:
Camphor:
Copaiba.

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* Medicine Expectante, Tom. III. p. 237. 8vo. Lyons, 1803.

† Medicina Nautica, Vol. III. p. 325. 8vo. Lond. 1814.

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paiba, though of somewhat greater balsamic pungency, has often been found essentially useful. Marryatt was peculiarly attached to it: he gave twenty drops of it night and morning upon sugar; and asserts that, when an ulcer has been formed, it ought never to be omitted *: and Dr. Simmonds appears to hold it in nearly as high an estimation †.

Fifth curative intention. To excite a change of action.

V. The last part of the general therapeutic process which has been attempted in most ages, has consisted in endeavouring to diminish or carry off the local affection by a transfer of action.

Blisters.

Blisters have very generally been applied for this purpose to the back or the chest. Their service is temporary, but often very efficacious, and they ought never to be neglected. It was formerly the custom to render them perpetual by the use of savine ointment, or some other escharotic. But it is equally less painful and more beneficial to let the skin heal, and renew them after short intervals.

Setons, issues, and caustics.

Setons, issues, and caustics, however, where the constitution is not very delicate, nor the habit very irritable, have proved far more powerful revellents, on account of their more violent stimulus and greater permanency of action. The actual cautery, though much abstained from in modern practice from its apparent, rather than real severity, was in almost universal use in ancient times; and, in the mode described by Celsus, was undoubtedly a very formidable operation. When the disease, says he, has taken a deep root, the cautery must be applied under the chin, in the throat, twice on each breast, and under the shoulder-blades; and the ulcers must not be healed as long as the cough continues. Dr. Mudge pursued this plan to a very considerable extent on his own person, and ascribes his cure to the use of it. He applied a large caustic between the

Actual cautery:

employed severely by the ancients.

Severe caustic applied by Mudge to his own person.

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[*] Therapeutica, Lond. 1758.

[†] Practical Observations on the Treatment of Consumptions, Lond. 1780.

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shoulders, which produced an eschar of nearly three inches in diameter, and held fifty peas: but he confined himself at the same time to milk and a vegetable diet *. Bennet exchanged the caustic for issues, which he placed in the groins and hams, under the arms, and between the shoulders, and kept sweet by peas of orris root; and asserts that he found the use of these highly beneficial. Yet setons are said by those who have employed them to be still more serviceable than issues.

The obvious intention is to produce a revulsion; and hence by transferring the morbid action to a part of less importance, to allow the lungs to return to a healthy condition.

Sometimes the morbid irritation has hereby been entirely carried off.

Such transfer may, by these means, in some cases, be rendered total, though, in general, the morbid irritation is only partially, instead of entirely, carried off. There are other means, however, by which it seems to be removed altogether, although they are means that are seldom put into our hands.

Carried off by a paroxym of ephemera.

Thus M. Bayle's fifty-third case is that of a medical man who was fully prepared to meet his fate, and resolved to take no medicine whatever. At this time a severe rigor from an unknown cause attacked him, succeeded by a sweating fit so profuse that his linen was changed two-and-twenty times in a night, and even this was not sufficient. The paroxysm proved critical; and the disease was thus carried off by an ephemera †.

By a hurricane.

Sir Gilbert Blane gives an account of a like singular and salutary change excited by a hurricane at Barbadoes, in 1780; which produced such an effect on the air, or on the nerves of the sick, that some who were labouring under incipient consumption were cured by it; while others, who had reached a more advanced stage,

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* Radical Cure for a recent Catarrhous Cough, p. 78. 8vo. Lond. 1779.

† Recherches sur la Phthisie, &c. ut supra.

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were decidedly relieved, and freed for a time from many of their symptoms *.

Suspended by a tooth-ache. Produced by a sudden cure of some cutaneous eruption, and removed by its restoration. Suspended by pregnancy:

Bennet relates a case of consumption which was suspended for two days in all its symptoms, except the emaciation, by a severe tooth-ache †. In Hautesierck's collection, we have an account of a recovery from a purulent expectoration, by the formation of a fistulous abscess in another part of the body, which was itself cured by an operation ‡. And we have numerous instances of consumption produced by a sudden cure of some chronic cutaneous eruption, and especially itch; and of its ceasing upon a restoration of the primary complaint. There is, however, no affection that seems to keep a consumptive diathesis in so complete a state of subjugation as that of pregnancy. Most practitioners have seen cases in which a female has dropped all the symptoms of phthisis upon conception, and has continued free from the disease till her delivery. Suckling does not seem to continue the truce; but if she conceive again shortly afterwards, she renews it: and there have been instances, in which from a rapid succession of pregnancies, the suspension has been so long protracted that the morbid diathesis has run through its course, and entirely subsided, leaving the patient in possession of firm and established health.

and sometimes radically cured by it.

How far any other disease may be employed as a preventive.

As one disease, therefore, or state of body, is well known to have a frequent influence upon another, and consumption is found to be thus influenced by various affections, it is a question well worth inquiring into whether there be any malady of less importance, which, like cow-pox over small-pox, by forestalling an influence on the constitution, may render it insusceptible of an attack of phthisis? Dr. Wells not many years ago, very ingeniously engaged in an inquiry of this kind; and

Inquiry of Wells upon this subject.

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* Observations on the Diseases of Seamen, 8vo. Lond. 1785.

† Vestibul. Tabid. ut supra.

‡ Recueil d'Observations de Medicine, &c. Part II. p. 286. Paris 1772.

Whether an atmosphere productive of agues does not indispose to consumption?

His investigations support this idea.

Those of Southey are not favourable to it.

finding that it was common for the consumptive in Flanders to remove to the marshy parts of the country where agues were frequent, he began to think, not indeed that agues might give an exemption from consumptions, but that the situation which produced the former might prove a guard against the latter. And so far as his topographical investigations have been carried, and they have extended over some part or other of all the quarters of the globe, this opinion has been countenanced: for he has discovered that wherever intermittents are endemic, consumption is rarely to be met with; while the latter has become frequent in proportion as draining has been introduced *. The later inquiries of Mr. Southey do not support this hypothesis; but the question is yet unsettled, and well worth pursuing; and Mr. Mansford who practises in the interior of Somersetshire, has still more lately published a work which, though not written as a defence of Dr. Wells's opinion, indirectly confirms it, by endeavouring to prove that a low, inland situation, like the vales of his own county, are far better calculated as a residence for consumptive patients than the air of mountains or of the sea-coast †.

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* Trans. Medico-chir. Soc. Vol. III. p. 471.

† Inquiry into the Influence of Situation on Pulmonary Consumption. By J. G. Mansford, &c. 8vo. 1818.

GENUS IV.

STRUMA.

Scrophula.

INDOLENT, GLANDULAR TUMOURS, CHIEFLY IN THE NECK; SUPPURATING SLOWLY, AND IMPERFECTLY, AND HEALING WITH DIFFICULTY; UPPER LIP THICKENED; SKIN SMOOTH; COUNTENANCE USUALLY FLORID.

Gen. IV. Synonyms.

The Greeks denominated this disease ΧΟΙΡΑ'Σ, the nosologists of recent times SCROPHULA, thus literally translating the Greek, and importing *swine-evil*, *swine-swellings*, or morbid tumours to which swine are subject. Celsus employs STRUMA, which was common in his own day, and has well described the complaint under this name, which is therefore selected on the present occasion.

Origin of the term struma.

It is probably derived from στρῶμα, "congestion," or "coacervation," as of straw in a litter, feathers in a bed, or tumours in the body; in which last sense Cicero elegantly employs the term as a metaphor in the phrase "struma civitatis," "the scrophula or king's-evil of the state." The medical dictionaries and glossaries concur in deriving struma from the Latin *struo*, but the terminating syllable of the noun should rather prove it to issue from a Greek source.

Distinction attempted between scrophula and struma.

Dr. Stoll endeavoured to make a distinction between scrophula and struma *, by regarding the one as a local, and the other as a constitutional and hereditary disease; but although he has been followed by a few writers, as well in our own country as on the continent, it is a distinction which has been generally relinquished as neither useful nor founded in fact.

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* Prælect. p. 30.

GEN. IV. Struma. Scrophula.

Other animals are subject to this disease besides man. It is, as already observed, from the frequency of its appearance among swine that the Greek name, as well as the more recent one of scrophula, is derived. Among horses we meet with it at least as often, when it is called farcy; under which modification it is propagable by transfusion of blood from the diseased horse, not only to other horses, but to asses also, as has been lately proved by Professor Coleman, at the Veterinary Institution. Sauvages, who has many species under the generic character, has two for the forms now referred to. The porcine species he denominates scrophula *Chalasis*, and the equine s. *Farcimen.*

Disease found in other animals than man. In horses called. farcy.

Analysis of Sauvages. Chalasis and Farcimen, what?

As it is not the intention of the present work to notice the diseases of other animals, otherwise than by an occasional and incidental glance, we shall proceed to a contemplation of the present genus under the single species of

1. STRUMA VULGARIS. KING'S EVIL.

The strumous and mesenteric decline, in the present classification atrophia *strumosa*, is often introduced as a second species: but though nearly allied to the present genus, it has so much closer a connexion with all the subdivisions of the genus MARASMUS, and especially with that of atrophia, that the former is evidently its proper place; and we have acordingly treated of it under that genus. In Dr. Cullen's Synopsis, it is arranged under the genus scrophula; and in deference to his authority it was allotted a like position in the first edition of the Nosology of the present writer: but in the subsequent editions it will be found transferred to the position before us.

Mesenteric decline more properly appertains to the genus marasmus where it has been given.

SPECIES I.

STRUMA VULGARIS.

King's Evil.

TUMOURS CONFINED TO THE EXTERNAL CONGLOBATE GLANDS; PEA-SIZED, OR CHESNUT-SIZED; APPEARING IN INFANCY OR YOUTH; SUBSIDING ON MATURE AGE; HEREDITARY.

GEN. IV. SPEC. I. Disease hereditary.

SCROPHULA though not a contagious disease is unquestionably hereditary *: and hence very generally dependent upon a peculiar diathesis. Yet, like many other hereditary diseases, it is also occasionally generated as a primary affection, without any hereditary taint that can be discovered. I have at this moment a gentleman under my care who has been greatly afflicted with it for many years, and is now chiefly labouring under its sequelæ: for the sores, which are in different glands and joints, and some of which have affected the bones, are healing: yet of eight brothers and sisters who have reached the middle of life, he is the only one who has discovered any tendency to such complaint, nor is it to be traced though any part of the family lineage as far as it can be ascended.

Sometimes ingenerate and original. Illustrated.

In this case not always limited to a particular temperament. Exemplified.

When it occurs as a primary or ingenerated affection it is by no means always limited to any particular temperament or habit of body. The individual just noticed is of moderate stature, brown complexion, dark brown hair, and ruddy face: and I am still occasionally attending a lady who has long been subject to the same complaint without any trace of hereditary predisposition,

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* Kirkland, On the Present State of Surgery, Vol. II. Kortum, Comment. de Vitio Scrophuloso. Lemgo, 1789.
Baumes, sur le Virus Scrophuleux, &c.

of a sallow countenance, dark eyes and hair, and of rather tall and slender make. But where scrophula appears hereditary, and especially where it does not show itself very early, it is often accompanied with a peculiar constitution. "It most commonly," says Dr. Cullen, "affects children of soft and flaccid flesh; of fair hair, and blue eyes; smooth skins, and rosy cheeks; and such children have frequently a tumid upper lip, with a chop in the middle of it; and this tumour is often considerable and extended to the columna nasi, and lower part of the nostrils." And it is a farther remark of Dr. Cullen, but which I have not found to hold very generally, that, where it takes place in children whose parents have given no signs of it, the latter have nevertheless evinced much of the habit and constitution by which the disease is ordinarily characterized.

When hereditary often accompanied with a peculiar diathesis.

Its character.

From all this we have a clear proof that king's evil is a disease of debility, operating by a specific influence on the circulating, and particularly on the lymphatic system *. Whether this influence is the result of a specific matter is by no means so clear; however common the opinion. It is also a general belief that this specific matter is from the first a specific irritant or acrimony. But this at least is a mistake: for the disease is accompanied throughout with diminished, instead of with increased irritability †; and hence the power producing it must be of a sedative rather than of an exciting or acuating quality. And it is in this diminution of irritability that scrophula differs from all other atonic diseases, since the debility and the irritability generally augment in like proportion, and maintain an equal march.

Disease of debility operating specifically on the lymphatics; but whether by a specific matter not clear.

If a specific matter not a specific irritant, as scrophula is marked with decreased irritability.

Early life is peculiarly characterized by an abundance of albumen, as its maturity is by an abundance of fibrin. Dr. Parr ascribes the scrophulous diathesis to a redundancy of albumen at this period, together

Parr's hypothesis of the remote cause.

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* Garn, Kranken geschichten. p. 121.

† Richter, Chir. Bibl. Band. VIII. p. 501.

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with an excess of oxygene and a deficiency of azote, evidenced by the florid hue of the countenance. By this hypothesis he obtains a sort of lentor in the circulating system; and accounts for the origin of scrophulous tumours by arguing that, since the mobility of the lymphatic system is peculiarly affected and diminished, the viscid fluids will be most disposed to stagnate there, and particularly in the lymphatic glands; as they must necessarily stagnate most where the impelling power is least.

Occasional causes.

Be the proximate cause, however, what it may, as the remote cause is of a debilitating kind, we can readily see what are likely to prove occasional and co-operative causes; or those calculated to call the remote cause into a state of activity. They must consist of every thing that directly lowers and reduces the tone of the living fibre, and puts the system out of that state of firm and vigorous elasticity which is the best prophylactic against scrophula, and keeps the scrophulous diathesis most effectually in a state of subjection. And hence we find the common debilitating powers of cold, damp, meagre or unwholesome food, want of cleanliness, and a close and suffocating atmosphere, the most usual incidental sources of scrophula.

Whatever reduces the tone of the system.

But for these, a scrophulous predisposition might remain dormant in the constitution through the whole of life; and descend to, and disorder the next generation, without having in the least disturbed the present. But the moment any of these occasional causes become adjuncts with the scrophulous diathesis, scrophula, rather than any other disease they are also calculated to promote, will make its appearance, and commence its ravage. And hence the frequency of this disease in large manufacturing towns, and in higher and colder latitudes than 45°

Local injuries. Depressing passions.

For the same reason, the disease has, at times, been called into activity by local injuries, the depressing influence of severe grief, on a sudden reverse of worldly

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Adverse fortune.

prosperity. It is also sometimes joined with, or follows rickets; and is frequently a sequel of small-pox, yaws, and several obstinate cutaneous affections.

Extends beyond the lymphatic glands;

to the eyes, nose, tonsils and other organs.

But though scrophula usually commences in the lymphatic glands it often extends beyond them: as gout, that ordinarily shows itself at first in the small joints, and rheumatism in the large joints, spread not unfrequently to the membranes and the muscles. I have said that under the influence of the scrophulous diathesis the circulating system is weakened generally; and hence also we frequently find the eyes, the mucous glands of the nose, the tonsils, and even the joints and bones successively yielding to its influence.

Origin and progress of scrophula.

The disease for the most part shows itself early in life, though rarely before the second, and commonly not till the third, year of infancy; from which period it continues to prey on the system till the seventh, when, in ordinary cases, it gradually subsides and disappears. If the predisposition be not considerable the attack is sometimes postponed till after the seventh year, and has occasionally been retarded till the age of puberty, after which, however, we have very seldom any manifestation of the disease.

Diagnosis, and advancing symptoms.

The first tumours we meet with are usually upon the sides of the neck, below the ears, or under the chin; confined to the lymphatic glands in these parts, and only spreading to the salivary when the disease has considerably advanced. The tumours are, perhaps, two or three in number, moveable, soft and slightly elastic, of a globular or oval figure, without pain or discolouration of the skin. In this state they continue for a year or two: after which they grow larger, and become more fixed; and acquire a purplish redness. They then give a feeling of greater softness, and at length of fluctuation: after which the skin, in one or more of them, becomes paler, and a peculiar liquid is poured forth at several small apertures, apparently like immature pus, but growing daily less purulent, and at length assuming a curd-like form. The tumour or cluster of tumours then

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then subsides; but others rise in the neighbourhood; and in this manner the disease proceeds, fresh tumours forming, chiefly in the course of the spring, as the older disappear, and the same process is continued for several years: after which the ulcers heal spontaneously with puckered and indelible indentations, provided the disease terminates favourably: but if not, other parts of the system, as we have already observed, become tainted with the morbid influence, and add to the sum of distress. If the attack fall upon the eye-lids they become inflamed, are swollen and red, and pour forth, from their minute glands, an erosive but viscid secretion which glues them together at night, so that in the morning they are opened with difficulty. The adnata partakes of the irritation, which is at length communicated to the whole globe of the eye, and not unfrequently to the cheek, from the acrid discharge that flows down. An unsightly lippitude and eversion of the lower eye-lid is hence a very common result of a scrophulous attack on this organ.

Fixes sometimes on the limbs, ligaments, and bones.

In like manner the disease, in this unfavourable and aggravated state often makes its assault on the limbs, and fixes on the ligaments, cartilages, or even the bones themselves; and particularly whenever any injury occurs to a joint. An indolent tumour first shows itself which tardily advances in magnitude with a kind of smothered inflammation, and at length opens on the surface from one or more minute ulcerations which discharge the sanious kind of fluid we have already noticed. And it is here we perceive how nearly scrophula is related to hydarthrus or white-swelling; and how readily the former may become a cause of the latter, as already observed under that species. If the strumous diathesis be excited by the fracture of a bone the broken ends unite with great difficulty, and sometimes not at all. A specific tumour forms in the seat of the injury, the soft parts are often affected with a weak inflammation, and ulcerate slowly; and the bone is rendered carious. If the injury occur in the middle of a cylindrical bone an exfoliation may take place in a long course of time: but

Nearly related to white swelling.

if at its extremity, it will become spongy, enlarged, and disorganized. If a cure be at length effected, the enlargement will remain and the articulation be lost: yet amputation will be of no use while the part continues under the influence of the scrophulous taint.

Sometimes the entire system contaminated.

In the worst and severest stage of the disease, the entire system appears to be contaminated; hectic fever ensues, and sometimes tubercular phthisis which gradually puts an end to the contest.

Principle to be attended to in attempting a cure.

Modified tonic and stimulant plan:

In attending to the cure, we must not be unmindful of the principle we have endeavoured to establish that scrophula is a disease of debility principally affecting the lymphatic system, accompanied with diminished irritability. And it hence follows that our chief dependence must be upon a tonic and stimulant plan, so modified as to meet the patient's age, idiosyncrasy, and manner of life.

Different kinds of stimulants.

How far an acrimony is generated in an aggravated state of the disease.

Sedatives and narcotics why employed?

Alkalies why employed?

How far an acrimonious principle may be generated, after the disease has become aggravated and general, it is difficult to say: but in its commencement, and while confined to the lymphatic glands, and indeed through the whole of its ordinary and milder course, induces diminished rather than exalted irritability, and consequently gives no proof of an acuating or acrimonious source. Yet such a source has been supposed even from its first appearance: and hence sedatives and narcotics have found a place among the most celebrated of its remedies: while, as the chemical character of the acrimony has been also pretended to be developed, and has been declared to be a specific acid, another class of remedies had recourse to has been the alkalies.

Often of use though not as correctors of acidity, but as stimulants.

That the latter are often of considerable service ought, I think, freely to be admitted; but we have assuredly no proof that they become beneficial as correctors of acidity. They are gentle stimulants admirably adapted to the debilitated and indolent condition of the vascular system they are intended to excite: and hence in whatever form they are given have a chance of doing good. And it is to this principle we are perhaps to resolve all the advan-

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tage that has been stated by different writers, and in different ages of the world, to have resulted from the use of burnt-sponge, burnt cuttle-fish, shells of all kinds, burnt hartshorn, and even burnt secundines, which last were at one time in high request, and are to be fond as a sovereign remedy in Schroeder's Pharmacopœa*. All these have in our own day deservedly yielded to the carbonate of soda, or sub-carbonate of ammonia; which, in a more elegant and concentratred form, offer whatever virtues may be contained in the older medicines.

Carbonate of soda. Sub-carbonate of ammonia.

Lime-water. Muriate of baryte.

Lime-water, and the muriate of baryte, which last was thought by Dr. Adair Crawford to be nearly a specific, if they have any pretensions whatever, can only derive them from the general principle of their being stimulants and especially of the lymphatic system. And the same may be observed of petroselinum, sarsa, mezereon, balsam of sulphuro calamus aromaticus, and horse-radish, all of which have had their votaries in their day.

Other lymphatic stimulants.

Muriate of soda.

Muriate of soda or common sea-salt possesses a like character; and has undoubtedly been found of far more use in many cases. It has, hence, been employed very freely both internally and externally. In the latter case very generally through the medium of the bibulous marine plants, which contain it in a larger proportion, and have been applied to the strumous tumours in the form of epithems; as sea-wrack (fucus *vesiculosus*): sea-tang (alga *marina*), and sea-oak (quercus *marina*.)

Bibulous marine plants as external stimulants.

Mineral waters:

The mineral waters of every description, have in like manner been had recourse to, chalybeate, sulphureous, and saline; and perhaps, as Dr. Cullen observes, with nearly a like reputation and success; though it is by no means improbable that some waters may prove a more remedial stimulant or alterant to some constitutions, and others to others. And we thus possess a more plausible reason for their being advantageous than that offered by Dr. Cullen; namely that "if they are ever successful it is the elementary water that is the chief part of the remedy*:" which he tells us in another place may be of use by washing out the lymphatic system†."

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* Lib. v. p. 288.

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Supposed useful by Cullen from their waters alone.

Stimulant external applications, besides sea-water have also been tried, and undoubtedly been often found serviceable; as a long continued friction of the hand over the scrophulous protuberances, mercurial or ammoniacal plasters, or the convenient form in the London Pharmacopœia that combines both these ingredients; irritant ointments, the aura of voltaism, or moderate shocks of electricity.

Other external stimulants. Mercurial.

Electricity.

The means of this kind, however, to which we have recourse, whether external or internal, should always be gentle at first, however we may venture upon augmenting them afterwards. If we stimulate violently; we shall do mischief rather than good, and add to the debility instead of diminishing it. Scrophula is a strictly chronic disease; it never has been, and never can be cured rapidly; and wherever any beneficial influence has been produced upon it, it has always been, as in the case of the alkalies, and of mineral waters, by lenient means and patient perseverance.

Excitement at first should be gentle.

But we have to increase the power as well as the irritability: and hence tonics seem to be as much demanded as stimulants; and have in fact been as generally made use of.

Different kinds of tonics.

It is very singular that of this class of medicines the only one which Dr. Cullen has though it worth while to notice are bark and colts-foot; of the first of these, he speaks very doubtfully; while he seems to depend more on the second than on any other remedy whatever. This opinion he expresses in his Practice of Physic, published 1783; but, in his Materia Medica, published six years afterwards, he gives it the same high character, and tell us that he was induced to try it in scrophulous cases upon the testimony and recommendation of Fuller.

Colts-foot mostly depended on by Cullen.

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* Pract. of Phys. Vol. IV. MDCCLII.

† Id. Vol IV. MDCCLI.

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He employed both an expressed juice of the fresh leaves, and a decoction of the dry: but preferred the former, of which he gave "some ounces every day," and affirms that "in several instances it has occasioned the healing up of scrophulous sores." He admits, however, that neither of them were in some trials sufficiently effectual.

Metallic salts.

Calomel.

The metallic salts have been more generally used, and have at least acquired a higher reputation; though, with the exception of calomel, I do not know any of them that can appeal to any decided testimonies in proof of their success; and even calomel may perhaps be regarded rather as an alterant or mild stimulant than as a tonic. Salivation has always done harm; and on this account also mercury in every form must be given in minute doses. Combined with some preparations of antimony, and particularly with the precipitated sulphuret, as in Plummer's pills, it is said to have been chiefly serviceable. But in my own practice I have not found this medicine of any manifest service in the present disease.

Salivation injurious.

Plummer's pill.

Acids.

The acids have also been tried, but are of little or no avail. They who regard the scrophulous taint as consisting in an acid acrimony, are apt to lay hold of this fact in support of their hypothesis. A better reason for their inefficacy is perhaps to be found in their sedative property which we had occasion to notice at some length when treating of phthisis.

Tonic medicines hitherto tried, not highly useful.

Tonic regimen more serviceable.

Upon the whole, however, the tonic class of medicines has thus far proved considerably less decisive and important in the treatment of scrophula than we might fairly have conjectured. Yet a tonic regimen of sea-air, sea-bathing, liberal exercise, and a diet somewhat generous; is of the highest consequence in promoting improvement, and ought by no means to be dispensed with. The Infirmary at Margate is on this account a noble institution, and cannot be too liberally supported.

Narcotics.

Of the specific benefit of narcotics as hemlock, henbane, foxglove, solanum, asclepias, vincetoxicum, and many others, I have yet to be persuaded. They may possibly be of some use in quieting the irritation occa-

Gen. IV. Spec. I. Struma vulgaris. King's evil. may at times do good: but often disappoint.

sionally produced by congestion and mechanical pressure where the tumours are peculiarly indurated and large; and in such cases may assist in softening and diminishing them. And they may perhaps operate in the same way where, in the later and more malignant stages of the disease, the secretion is become virulent, the open ulcers irritable, and a foundation is hereby laid for hectic fever. But I can conscientiously say with Dr. Cullen, that they have often disappointed me, and have not seemed to dispose scrophulous ulcers to heal.

Local applications when the tumours have broken.

The local applications, like the internal remedies, should be slightly stimulant; and, where the tumours have broken, usually consist of digestive ointments combined with the caustic metallic salts of mercury, zinc, or copper; and of digestive lotions of a dilute solution of alum or nitrate of silver. These are well calculated to coincide with the general intention; but we must not expect a sound cure till the morbid impression is set at rest in the constitution, or utterly extirpated from it.

GENUS V.

CARCINUS.

Cancer.

SCIRRHOUS, LIVID TUMOUR, INTERSECTED WITH FIRM, WHITISH, DIVERGENT BANDS, FOUND CHIEFLY IN THE SECERNENT GLANDS; PAINS ACUTE AND LANCINATING; OFTEN PROPAGATED TO OTHER PARTS; TERMINATING IN A FETID AND ICHOROUS ULCER.

GEN. V. Only one known species.

OF this genus there is but one known species: for the division into occult and open, or indolent and ulcerative, introduced by Hippocrates and continued till the time of Boerhaave is unnecessary in pathology, and incorrect in a nosological arrangement; as the distinctions it contemplates are nothing more than so many stages or modifications of the same disease in different habits, or affected by different concomitants. This species is what is generally described under the name of

1. CARCINUS VULGARIS. COMMON CANCER:

and it is not necessary to alter the term.

SPECIES I.

CARCINUS VULGARIS.

Common Cancer.

TUMOUR BURNING, KNOTTY; WITH DARK CANCRIFORM VARICES; ULCER, WITH THICK, LIVID, RETORTED LIPS.

Gen. V. Spec. I. Fungus hæmatodes; sometimes called a cancer, but not strictly so.

There is a soft, fungous and bleeding ulcer, possessing the name of fungus hæmatodes, which has by many writers of celebrity been supposed to be of a cancerous origin; and under their authority it has been so regarded in the author's volume on Nosology: but as it seems to differ from cancer in its constitutional influence and in some of its local characters, it is better to contemplate it as a malignant ULCER of a peculiar kind: and in the present work it is referred to that genus accordingly.

Subdivisions of different writers: Bierchen gives five.

Some writers have offered many other subdivisions which are still less entitled to a distinct enumeration; as Bierchen, who has given us five under the names of the genuine, the strumous, the syphilitic, the fungous, and the noma*. Of these the first constitutes the species before us; the second and third are modifications of the same, only varied by the idiosyncrasy or incidental state of the constitution; and the last two are depraved ulcers.

Origin of the generic term.

The term carcinus (καρκίνος) is Greek, and imports a crab; the disease being thus called from the cancriform or crab-like ramifications of the dark, distended veins of the cancerous tumour. The question is of some con-

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* Abhandl. von den wahren kennzeichen des Krebsschädens, &c. Goet. 1775.

GEN. V. SPEC. I. Carcinus vulgaris. Common cancer. Cancer whether constitutional or hereditary or merely local? Formerly generally regarded in the first view: more lately in the second. Difficulty attending the second view when applied universally, and leading to the idea of a constitutional affection.

sequence whether cancer be a constitutional, or a local, whether an hereditary or merely an occasional disease. Much has been said, and well said, on both sides. Till of late years the disease was generally regarded as a constitutional affection, and will, for the most part, therefore, be found in the division of cachexies from Sauvages to Macbride, though Dr. Cullen has introduced it into his class *locales:* and since his time many of the best writers of the present day, among whom are Dr. Baillie and Mr. Abernethy, concur in regarding it as local alone. If the disease be merely local it is difficult, and perhaps insuperably difficult, to say why a blow on a conglomerate gland, as the breast for example, should sometimes produce a cancer but more generally not: or what that power is that excites the cancerous action in one person, from which another, or perhaps a hundred others, remain free upon an application of the very same injury to the same organ. A blow on the knee often produces a white swelling; but ten thousand children receive blows on the knee without any such effect following. In this case we resolve the difference of result, without a controversy, into the presence or absence of a scrophulous constitution; and without this view of the subject we should find ourselves at a loss for an answer. And unless we apply the same reasoning to cancer we shall ever, I fear, remain at an equal loss. The cases, moreover, in which cancerous tumours are found in other parts of the body after one, or more than one, has been extirpated lead us by an easy thread to the same conclusion, provided the tumour has been removed in an early stage of the disease, and before ulceration has taken place; for it is possible that the specific matter of a cancer, generated and matured locally, may be absorbed and deposited on the organs which are afterwards affected. But if the extirpation have taken place before the formation of the specific matter, it is not easy, except by a constitutional taint, to account for any subsequent appearances.

Other arguments in favour of a constitutional affection.

It is still stronger in proof of an hereditary predispo-

GEN. V. SPEC. I. Carcinus vulgaris. Common cancer.

sition that various members of the same family have exhibited the same disease either simultaneously or in succession; and that the descendants of those who have been afflicted with it seem to have more frequently suffered from it than others. It is not necessary to advance individual instances in support of these positions. The same remarks have been made upon a general survey of the disease in most ages; and the doctrine of an hereditary influence has, in consequence, descended to us as a result of such remarks from the time of the Greeks and Romans.

The two distinct views attempted to be reconciled.

The truth seems to be, that cancer, like gout, is dependent upon a peculiar diathesis or state of the constitution, which disposes a scirrhous tumour, or any other occasional cause, to produce a cancerous ulceration, and consequently to generate the specific matter of cancer; which matter, once absorbed into the system, even though, by a removal of the local affection, and the influence of a healthy habit, it should remain dormant or be kept in subjection, may augment the original predisposition, and transmit a seminium to the future race.

Whether a constitutional diathesis be manifested by the features?

Such manifestation not to be found in all hereditary predispositions:

but suspected by Parr in cancer.

His outlines of it.

How far a predisposition to cancer, whether original or derived, may manifest itself by external signs, I am not able to determine. Such an outward character is by no means constant in the list of hereditary diseases. It is perhaps generally visible in those that affect the mind; but far less so in those that affect the body. In phthisis, the predominant diathesis has a striking exterior; in scrophula, the outward and visible sign is far less distinct, though such a sign seems to prevail generally: in gout, there is no specific exterior that we can depend upon. Dr. Parr, however, has conceived that cancer has its outward character as well as phthisis, and that it is indelibly marked in the complexion: "for we have found," says he, "cancers more frequent in the dark cadaverous complexions, than in the fairer kind. The complexion we mean is distinct from the darkness of the atrabilious or melancholic habits; a blue tint seems mixt with the brown, and is chiefly conspicuous under

Gen. V. Spec. I. Carcinus vulgaris. Common cancer.

the eyes, or in the parts usually fair. This may, perhaps, be a refinement without foundation, but we think we have often observed it. There is certainly no constitutional symptom by which it can be predicted, if, in women, a scanty and a dark-coloured catamenial discharge be not a prognostic of the future disease. Cancer has certainly been traced in females of the same family; and those who have escaped suffer from irregular anomalous pains, and different, often unaccountable, complaints *." The picture thus ingeniously drawn is worth bearing in mind, but I have never been able sufficiently to appropriate it; and in the last two or three cases of cancerous breasts that have occurred to myself, the patients have been of fair complexion, and light hair: one of them, indeed, peculiarly so: the lady was about fifty, and had had a large and very handsome family, all of whom were so fair as to make a near approach to the phthisical exterior, though none of them have ever exhibited its pathognomics.

Does not hold uniformly.

Cancer whether contagious?

No sufficient ground for such a belief.

Cancer has also been imagined by many practitioners of high respectability to be contagious; of whom we may mention Bierchen, Sinnert, and Gooch; but there seems no sufficient ground for the continuance of such an opinion. Inoculation has been said to have produced the complaint; but, like many other specific acrimonies, it does not act very readily in this way, even if it act at all; for M. Alibert affirms that he inoculated both himself and several of his pupils, without any other effect than that of local inflammation; and that even this did not always ensue †. It has been swallowed by dogs without any mischief ‡.

Parts of the body most usually affected.

The parts most usually affected by cancer are the excretory glands, and especially those that separate the fluids to be employed in the animal economy, rather than those that secern the excrementitious part of the

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* Med. Dict. in verbo.

† Maladies de la Peau, &c.

‡ Le Febure, Remede, &c. 1776.

blood. The lymphatics are seldom primarily affected, though they may become tainted from their contamination with a cancerous part. "I never yet," says Mr. Pearson, "met with an unequivocal proof of a primary (cancerous) scirrhus in an absorbent gland *." And hence we behold a striking difference between the nature of cancer and scróphula. But though the secernent glands are most open to the attack of cancer, any part of the body may become its seat. We meet with it, however, chiefly in the breasts of females, the uterus, the testes, the glans penis, the tongue, stomach, cheeks, lips, and angles of the eyes. The obstruction commences in the minuter vessels; and the adjacent parts are affected in consequence.

GEN. V.
SPEC. I.
Carcinus vulgaris.
Common cancer.
Lymphatics not readily affected.

Women are more subject to cancer than men; and in these the mammæ and the uterus are the organs most predisposed to its influence. Celibacy, as well as the cessation of the menses, conduces to its production or appearance; and hence antiquated maids are mostly affected with it; and next to these, mothers who have not suckled their children, for we may lay it down as an axiom, in the language of Dr. Parr, that a milk abscess never becomes a cancer. Then follow women who are past child-bearing. And lastly, women who have borne children and suckled them with their own milk, and males incidentally exposed to its occasional causes. To which we may add, that when cancer occurs in men it is chiefly in the lips, and when in children, in the eyes.

Women more subject than men.

When men are attacked, the lips chiefly suffer: when children, the eyes.

Of the remote cause of cancer we know nothing. While scrophula has been supposed by some to be the the result of an acid acrimony; cancer has by others been supposed to be produced by a peculiar alkali. Dr. Crawford, from a series of very curious experiments upon the matter of cancer, thought he had ascertained this to consist principally of hepatised ammonia, and

Remote cause unknown.
By some, a peculiar acid supposed: by others, a peculiar alkali.
Crawford's hypothesis.

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* Principles of Surgery, &c. Vol. I. p. 209, &c.

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Parr's hypothesis.

found that this matter effervesced with sulphuric acid *. Ploucquet, however, affirms, that it sometimes effervesces with alkalies as well †. The taste discovers nothing; for to the tongue it is insipid and mawkish rather than acid or alkaline. Yet Parr, laying hold of Crawford's experiments, has boldly ventured to assert that the remote cause, or rather the cause of the cancerous diathesis, consists in an excess of ammonia with a redundant developement of sulphur.

Ascribed to vermicles or larves,

When it was popular in the Linnéan school to resolve almost all diseases into the irritation of worms, grubs, or insects existing parasitically in different organs of the body, cancer was by some theorists supposed to depend upon a like cause: and the hypothesis has been since adopted by several writers in our own country, as Mr. Justamond who ascribed it to the larves of a particular species of insects, and Dr. Adams, who referred it to hydatids ‡. Vermicles or the larves of insects have at times been found in the open ulcer of a cancer, as in the fetid discharge of many other malignant ulcers. These, as in other cases, have undoubtedly proceeded from eggs deposited in the sore as a nidus, though the worm or insect that has so deposited them has never been detected. Such appears to be the foundation of this hypothesis, which we have no authority for carrying farther, and which is rarely advocated in the present day.

by Justamond and Adams.

Occasional causes numerous, where a predisposition exists.

The occasional or existing causes are numerous: but to account for their efficiency it seems indispensable, as we have already observed, to suppose the existence of a cancerous predisposition or diathesis, since we see the same causes acting in innumerable instances daily, without betraying any tendency to such a result. Where this is present it may be produced by an external injury upon any of the parts most susceptible of cancer; by an indurated

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* Phil. Trans. Vol. LXXX. 1791.

† Init. Biblioth. Tom. II. p. 202.

‡ Observations on Morbid Poisons.

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and chronic tumour incidentally inflamed or irritated: an accumulation of acrid filth in the rugæ of the skin which is a frequent cause of cancer in the testes, and particularly among chimney-sweepers: the hard and pungent pressure of a wart or corn in an irritable habit, of which the medical records offer various examples; the acrimony of an herpetic eruption; the general disturbance produced in the system by a severe attack of small-pox, or several other exanthems; a sudden suspension of a periodical hemorrhoidal flux and a cessation of the menses; and, when in the stomach, by a previous life of ebriety or irregular living. With these severe cold seems also to co-operate, as the disease is generally admitted to be both more frequent and more virulent in the high northern latitudes than in the southern regions of Europe.

Cancer of the breast.

Progress and general description.

When cancer takes place in the breast, it usually commences with a small indolent tumour that excites little attention. In process of time, this tumour is attended with an itching, which is gradually exchanged for a pricking, a shooting, and at length a lancinating pain, a sense of burning, and a livid discoloration of the skin. And, however difficult it may be to determine the precise point of time in which the scirrhus first becomes converted into a cancer, where these symptoms are united there can be no risk in calling the tumour by the latter name. Adhesive bands are now formed in the integuments which become puckered; while the nipple is drawn inwards by suction, and in some instances completely disappears: the tumour rises higher towards the surface and feels knotty to the finger; at the same time that the subcutaneous vessels are distended with blood and show themselves in dark cancri-form varices. The march of the disease may be slow or rapid, for it varies considerably in its pace; but at length the integuments give way in a few points to the ulcerative process, and a small quantity of caustic ichor, or of lymphatic fluid tinged with blood from the eroded vessels, is thrown forth, sometimes with short and deceitful relief; the ulcerative process in the mean time ad-

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vancing, and spreading wider and deeper till a considerable extent of surface becomes exposed, and a broad excavation is scooped out with a discharge of a peculiar and most offensive fetor. Here again the ulcer sometimes affords a delusive hope of recovery by its granulating; but the granulations are soft and spongy, and not unfrequently bleed from the loose texture of the new vessels, or their erosion by the cancerous matter. It is rarely, moreover, that they extend over the entire surface of the sore; for more generally while one part is covered with them another part is sloughing, and each of the parts runs alternately into the action of the other. And not unfrequently the lymphatic vessels become affected as high up as the axillæ, and in their course betray a few smaller tumours. But whether this is a mere result of contiguous sympathy or of cancerous taint, is uncertain. Cancer, as we have already observed, rarely, if ever, commences in lymphatic glands, which show a peculiar indisposition to the power of its seminium; but they, at length, partake of the disease in the course of its ravage; and hence all such suspected tumours are prudently removed when the knife has been resolved upon. Where the disease has spread widely or continued long, some of the muscles of respiration participate in the irritation, and the breathing is performed with difficulty.

Cancer of the womb.

When cancer attacks the uterus it is known by tensive lancinating pains in this organ, shooting through the region of the pelvis; indurations in the part sensible to the touch; a preceding and immoderate leucorrhœa, or menstruation; sometimes both. The ulcerative process, as far as we are acquainted with it, is the same as already described; and as soon as it has worked to the surface of the organ, there is a sanious, or bloody, or mixed discharge characterized by the peculiar stench of the disease. By degrees, the labia swell and become edematous; and if, as sometimes happens, the inguinal glands be obstructed, the edema extends along the thigh.

Gen. V.
Spec. I.
Carcinus vulgaris.
Common cancer.
Cancer in the vagina.
Cancer in the stomach.

Cancer in the vagina which, however, rarely takes place, can easily be felt, and in the rectum the distinction is not difficult. The nature of the discharge, and the other symptoms just noticed, are sufficient to decide its existence. It is still more obvious in the penis.

None of these symptoms assist us in determining its presence in the stomach: and hence how confidently soever it may be conjectured from the marks of an acute and burning pain, tenderness of the epigastrium upon pressure, nausea, and rejection of food, and even an offensive fetor in the breath, the disease can seldom be completely ascertained till after death.

Cancer in the testicle.
Chimney-sweepers' cancer.

The progress of cancer in the testicle is often slower than in many other parts. In chimney-sweepers we can trace an obvious cause, which is that of soot lodged in its rugæ, and irritating as well from its own acrimony as from that of the perspiratory fluid with which it comes in contact and forms an union. A painful ragged sore with hard rising edges is first produced; or, sometimes, a little indurated wart; which, from inattention, increases in size, is repeatedly rubbed off by the exercise of climbing, enlarges and deepens its sphere of irritation, grows more malignant, and at length is converted into a real cancer, and affects the whole scrotum or the body of the testis. In whatever part of this complicated organ, however, the disease commences, it is progressively communicated to the rest; the scirrhosity increases in size and hardness, till the tumour often acquires an enormous and irregular magnitude, studded externally with numerous protuberances, and the shape of the testis, even before ulceration, is entirely lost. In the progress of the disease, the spermatic chord becomes affected, and the taint or irritation is communicated more or less to the viscera of the peritoneal or lumbar cavities.

Cancer on the lips.

From the cancerous effect of a highly irritable wart or crack on the scrotum of chimney-sweepers, we may derive some idea of the formation of cancers on other superficial parts of the body from a similar beginning. These most frequently occur on the lips, nose, or eye-

Gen. V. Spec. I. Carcinus vulgaris. Common cancer.

lids; and oftener from a crack than from a wart. The edges of the sore become hard, and one or more tumours issue from them, which increase in size and gradually evince a cancerous character.

Cancer on the tongue.

On the tongue the same disease sometimes shows itself; and more usually commences with a small wart or pimple near the tip, which hardens by degrees, grows highly irritable and malignant, and, spreading its influence through the entire organs, swells it to a prodigious size, and renders it of a scirrhous induration.

Curative means. Cancer has terminated spontaneously:

Cancer is said, in a few instances, to have terminated spontaneously. De Haen gives us one example of this*: and Parr affirms that he has seen six cases of the same in his own practice. But he adds, in proof of its being a constitutional affection, that in every case the cure was followed by some other disease, as an enteritis, fixed pains in the limbs, a sciatica, or an apoplexy, in one of these cases the apoplectic attack occurred twice, and the last was fatal†.

Yet rarely cured except by the knife. Progress may be arrested by medical treatment. Topical bleeding and applications. Sheet-lead.

In general, however, a cure is rarely affected but by the knife or a caustic, the use of which it does not belong to the present course of study to explain. Yet the progress of the complaint may perhaps be arrested; and we are often able, without cutting, to render it, at least tolerable, for a series of years. In an early stage of the disease relief may often be obtained by topical bleeding, as with leeches; and topical refrigerant applications, as saturnine lotions, or sheet-lead in very thin layers, as the linings of tea-packages, an application which has of late been brought forward as something new, but which was employed long ago, and may be found recommended in many of the older journals of established reputation ‡.

Diet and regimen.

The diet should be limited to the mildest nutriment, and wine be sedulously avoided. At this period, indeed,

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* Epist. De Cicutâ, p. 43.

† Dict. in verb. Vol. I. p. 329.

‡ Eph Nat. Cur. Dec. I, Ann. IV, V. Obs. 161.

GEN. V. SPEC. I. Carcinus vulgaris. Common cancer. Treatment.

whatever can prevent or lessen inflammation should be seriously studied, and adhered to.

Cured by rigid abstinence.

Ponteau relates the case of a cure produced by rigid abstemiousness alone, the patient taking nothing whatever but water for a period of two months[*].

In the advance of the disease gentle stimulants externally.

As, however, the disease advances and assumes more of a chronic character the activity of the smaller vessels may be gently urged in order to relieve or prevent congestion. And, where the irritation is not great, we may by degrees apply gentle stimulants also externally, and let the saturnine lotion be superseded by the acetated solution of ammonia, tar-water as recommended by Quadrio, or an illination of the surrounding parts with mercurial ointment combined with a small portion of camphor.

Internal medicines, chiefly narcotics and mineral tonics.

The internal medicines which have been chiefly trusted to for the cure of cancer are the lurid and umbellate narcotics and the mineral tonics: the former apparently for the purpose of taking off irritation, and, in some instances, correcting the specific acrimony; and the latter for supporting the living power, and thus enabling the system to obtain a triumph over the disease by its own instinctive or remedial energy.

Narcotics differently estimated. Hemlock, as extolled by Stoerck and Van Swieten.

Of the first class the chief have been the bella donna and hemlock, and particularly the latter, which appears to have been most promising. When Dr. Stoerck of Vienna published his work upon the successful exhibition of hemlock in cases of confirmed cancer, many of which were vouched for by the baron Van Swieten, every practioner was eager for examples upon which to try the experiment for himself. Solanum had been in vogue but was just sinking into disrepute from its numerous failures: and corrosive sublimate was the medicine chiefly confided in at St. Thomas's Hospital. Dr. Akenside, who was at this time prescribing the corro-

Fairly tried by Akenside.

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[*] Nuovo Metodo per curare sicuramente ogni Canchero coperto, &c. Venezia, 1750.

Oeuvres Posthumes, Tom. I.

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sive sublimate in the hospital, with, what he thought, a gratifying success, immediately exchanged it for the conium, or cicuta as it was then called. He tried it, upon a large scale, in every stage and modification of the disease, and at first with the most sanguine expectations. But his hopes gradually failed him as he advanced in the career of his experiments; and he was compelled to make very great draw-backs upon Dr. Stoerck's commendation of the medicine. He allows it, however, a certain degree of merit, and his account is drawn up with a degree of candour which entitles it to the fullest confidence, and appears to deal out the real truth. In recent states of the disease where there was no ulceration, or none of any depth, he asserts that it often produced a favourable termination, and gives numerous examples to this effect. But in inveterate cases, where the cancerous ulcer had made considerable progress, its benefit was very questionable: it operated often for a very few days like a charm, diminished the pains and improved the discharge: but suddenly it failed to do the slightest good any longer, unless the dose were very largely increased; upon which a like beneficial effect followed; but unfortunately of equally transient duration. The dose was, in many instances, again increased; and continued to be so, till at length the symptoms produced by the cicuta were as mischievous as those of the cancer itself, and Dr. Akenside was compelled to abandon it*.

His result: often serviceable: but in inveterate cases never cures.

Variable reports of others.

We are hence in some degree prepared for the contradictory accounts of its effects which are furnished by different writers. De Haen asserts that it affords neither cure nor relief of any kind†; Bierchen, that it aggravates real cancer, though sometimes serviceable in scrophulous‡; and Lange, that it is altogether inefficacious§.

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* Transact. of the Col. of Phys. of Lond. Vol. I. Art. VI. p. 64.

† Rat. Med. II. 37.

‡ Loco. citato.

§ Diss. dubia Cicutæ vexata. Helmst. 1764.

Fothergill is friendly to its use[*]; and Bell[†] and Fearon[‡] recommend it both externally and internally, alone or in combination with opium.

Gen. V. Spec. I. Carcinus vulgaris. Common cancer. Treatment. Its virus often exaggerated. Failure accounted for in some cases. Exemplified.

For this discrepancy of judgment we have in some measure endeavoured to account. Yet the advocates of the medicine have, doubtless, in some instances, suffered themselves to speak of it in exaggerated terms; and it is highly probable that in others, where it has seemed altogether inefficacious, the hemlock, whether in powder or extract, was administered in an imperfect state. Dr. Cullen gives a striking example of this last fact in a lady who, being very particular in the use of this medicine, employed the powder as mostly to be depended upon, and weighed out her own doses, beginning with a small quantity at a time and proceeding gradually till she took sixty grains at once. By this period her parcel of the powder was exhausted; and she had derived no beneficial effect. She supplied herself, however, with another parcel, and being warned that different samples were rarely of the same strength, she reduced her first dose of the new plant to a scruple: yet even this nearly killed her: for in ten or fifteen minutes she was affected with sickness, tremor, giddiness, delirium and convulsions. Happily the sickness proceeded to a vomiting, and the poison was rejected. But of the fresh supply she was never afterwards able to take more than five or six grains at a dose, notwithstanding she had taken sixty grains of the preceding without any mischief[§].

Quantities said to have been given, sometimes enormous.

Yet the quantities pretended to be given by some practitioners are far beyond this last amount. Thus, Dease informs us that he gave AN OUNCE AND A HALF of the powder every twenty-four hours[‖], and performed a cure; and Rostard that his ordinary allowance was six

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[*] Works, Vol. II. passim.

[†] On Ulcers, Part II. Sect VIII.

[‡] On Cancers, passim.

[§] Mat. Med. Vol. II. Part II. Ch. VI. p. 264.

[‖] Introduct. to the Theory and Practice of Surgery. I.

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drachms of the extract for the same period, which is a still higher proportion *. Warner gave a drachm and a half, and thought it an enormous quantity, without mischief †.

Akenside's statement confirmed generally.

Upon the whole, the balance of experiments seems very much to confirm the candid report of Dr. Akenside. Schaeffer, and many others contend that even its beneficial influence is nothing more than a result of its narcotic power: but it does seem, in some instances, to act as a discutient, and to improve the quality of the secretion as well as to relieve the pains. Dr. Cullen advances further, and tells us that he has found it in several cases, make a considerable approach towards healing the sore; "Though I must own," says he, "that I was never concerned in a cancerous case, in which the cure of the sore was completed ‡."

Has other virtues than a narcotic power.

Effects of other narcotics.

Of the other narcotics, chiefly of the solanaceous order, that have been employed, it is hardly worth while to speak particularly. The same uncertainty has accompanied their use: and some of them, as aconite and dulcamara, have been rather supposed to effect whatever temporary benefit has flowed from their employment by the general disturbance they produce in the system, whereby a transient stop is put to every other anomalous action, than by their sedative power.

Metallic oxydes: mercury, iron, arsenic.

Of the metallic oxydes that have been brought into use, the only ones it is necessary to notice are those of mercury, iron, and arsenic. The first has been uniformly found mischievous when carried to the extent of salivation. Loss asserts that by this mean he has cured a cancer of the nose and face §; but this was probably a spurious disease of zaruthan, as it has been called by some writers. It has more generally been employed as a gentle stimulant or alterant. Many prac-

Zaruthan what? Mercury most serviceable as a gentle stimulant.

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* Journ. de Med. Tom. xxxvii. p. 36.

† Treatise on the Eyes, passim.

‡ Mat. Med. loco. citat.

§ Observ. Med. B. iv. Lond. 1672.

titioners have preferred the corrosive sublimate in small doses; but the submuriate is a far better preparation. And even this is given with more advantage in the form of Plummer's, or the compound calomel pill, than alone, a form that conveniently unites a mild stimulant with a mild relaxant. To this, if the pain be acute, should be added a small quantity of opium; at the same time carefully guarding the bowels against constipation by any convenient aperient, if the pill itself should not prove sufficient.

Gen. V. Spec. I. Carcinus vulgaris. Common cancer. Treatment. Plummer's pill: with opium.

Iron has been tried in almost every state of combination, and there is reason to believe that in some of these it has proved beneficial. The ferrum ammoniatum appears to have been the most successful, and is still the most popular. Under the name of flores martiales it was introduced for this purpose before the public as far back as the middle of last century, by Francis Xavier de Mars, obtained, however, by a very uncouth and operose process. Dr. Denman was particularly attached to this metal in whatever form administered, and broadly affirms that after having employed almost all the medicines recommended for this disease in every different stage, he has never found any of them possess the pretensions of iron; and that the rest may be generally regarded as totally unavailing *. Its greatly stimulant power rather recommends it to us on the present occasion than proves an objection; for it is the kind of stimulus we stand in need of to excite a new local action. It is said to produce a very speedy mitigation of pain, an improved discharge, and a less fetid smell: and, even in hopeless cases, to render the disease less malignant and distressing: unfortunately, however, its effects, like those of conium, have rarely been found permanent; and it has closed its career as a palliative rather than as an antidote.

Iron: in some forms serviceable. Ferrum ammoniacale. Preferred to all other medicines by Denman. Effects produced by its use.

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* Observations on the cure of Cancer, p. 77.

Gen. V. Spec. I. Carcinus vulgaris. Common cancer. Treatment.

Arsenic, high and extensive reputation. An oriental remedy.

Employed in Europe by Theodoric about the year 1000.

Basis of all nostrums is that of Fusch, and Guy.

But of all the medicines of this class arsenic has acquired the highest and most extensive reputation. This is a strictly oriental remedy, employed, as we shall have occasion more fully to observe when treating of elephantiasis, for every impurity of the blood. Who first ventured upon it in Europe for the disease before us, is not very satisfactorily known. It was common in the time of Hildanus, who ascribes its introduction into practice by the monk Theodoric, who flourished about the beginning of the eleventh century [*]. It has formed the basis of almost all the secret remedies for cancer which have at any time been current, whether external or internal, from that of Fuschius, in the fourteenth century, who united it with soot and serpentary, to that of Richard Guy who wrote upon the disease [†] in the middle of the last century, and whose boasted arcanum was found to be a composition of arsenic, sulphur, hogsfennel (peucedanum *officinale*,) and arows's-foot (ranunculus *sylvestris* [‡]).

Real effects variously described.

Of the real effects of arsenic, as of several of the preceding medicines, we labour under great obscurity from the discrepant reports which have been communicated. Le Febure with a host of practitioners antecedent to, and contemporary with himself, employed it both externally and internally, and regarded it as a specific [§]. Smalz thinks it serviceable [||]. Schneider [¶] and Justamond declare it to be useless, though the latter employed it locally as an escharotic. Hildanus [**] and Delius [††] assert it to be injurious; and Schenck * and Meibom † give examples of fatal effects from its employment.

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[*] Cent. VI. Obs. 81.

[†] Essays on Scirrhous Tumours and Cancers. 1759.

[‡] Richter, Chir. Bibl. Band. v. p. 132.

[§] Remede eprouvé pour guerir radicalement le Cancere occulte, et manifeste ou ulceré. 8vo. Paris,

[||] Seltene chirurgische und medicinische Vorfälle. Leips. 1784. 8vo.

[¶] Chir. Geschichte, Theil. v.

[**] Account of the methods pursued in the treatment of Cancerous and Scirrhous Disorders. Lond. 1780.

[††] Dissert. Observat. et cognit. nonnulla chirurg. Fasc. VI.

GEN. V. SPEC. I. Carcinus vulgaris. Common cancer. Treatment.

Fatal effects, indeed, it is easy to produce, provided a sufficient degree of caution be not employed in experimenting upon it. And, in truth, it is not till lately that any very convenient form has been devised for trying its virtues without a risk of mischief; but the arsenical solution of the London College, for which we are indebted to Dr. Fowler, has given us a preparation of this kind. Yet even with this advantage we cannot boast of any certain success in the use of arsenic. It acts very differently on different constitutions, though generally speaking it proves beneficial; and in some cases may produce a radical cure. But more commonly, like the preparations of hemlock and iron, it unfortunately loses its effect as soon as the habit has become accustomed to its influence, and the cancerous taint, or cancerous action resumes its victorious career. And perhaps the only power that is capable of neutralizing cancer or keeping it permanently in subjection is the existence of a predominant diathesis of some other kind. How far the remark may have been made antecedently I know not, but, from a pretty close attention to the subject within my own sphere of observation, I have been led to conclude that cancer does not often make its attack upon those who are constitutionally subject to gout, and seems to be restrained by its influence.

Acts differently on different constitutions: but mostly does service: yet apt to lose its good effects by habit. How far the introduction of a different diathesis may be of permanent use? Seems to be restrained by that of gout.

The list of external applications is still more numerous than that of internal. We have already glanced at the local treatment before ulceration has taken place. After this period, sedative applications do not succeed, and moderate stimulants alone seem best to afford relief. In fact, the inflammation has now acquired much of the character of a malignant erythema, and requires warmer applications than phlegmonic sores. Yet a cure is rarely to be effected except by a caustic or knife. When the

Local treatment after ulceration.

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* Observ. Lib. II. N. 304.

† Blumenbach. Bibl. Band. VIII. p. 724.

Gen. V. Spec. I. Carcinus vulgaris. Common cancer. Treatment. Alkalies. Ammonia. Hence burnt toads once in repute. Acids. Carbonic acid gass. Muriatic acid. Gastric juice. Charcoal.

poison was supposed to be of an acid character a solution of the alkalies was employed to correct it, and the ammonia produced from burnt toads was at one time in very high repute. It was afterwards conceived to be of an alkaline nature; and various acids, and particularly the carbonic acid gass, were regarded as the best antagonists. Who first employed it for the present purpose is not known; but it stands recommended as early as 1776, in an article of Magellan, inserted in Rosier's Journal; and an easy and convenient mode of application has lately been contrived by Dr. Ewart of Bath. Dr. Crawford, however, for the same purpose preferred a lotion of muriatic acid diluted with three or four times its weight of water. Carminati and Senebier applied the gastric juice of animals; but poultices of carrots or charcoal have of late years been in more general reputation.

The general effect of these.

All these have a considerable influence in correcting the oppressive fetor, and keeping the sore clean; but whether they go beyond this has been doubted. Yet even this is of great importance, since such an effect must necessarily give some check to the spread of the ulceration, afford solace to the patient, and probably improve the nature of the discharge itself. And hence many writers have been sanguine enough to expect an entire cure from such processes; and others have given accounts of such cures *nearly* accomplished; but which seem seldom, if ever, to have been rendered complete.

Narcotic fomentations.

Fomentations of hemlock and various other narcotics have been also had recourse to, and sometimes tepid baths of the same, in which the patient has been ordered to sit for twenty minutes at a time; and temporary benefit has sometimes followed the use of these means; but they have often been tried with as little avail as the sucking of toads, which was at one time a fashionable remedy, and esteemed of great importance, the animals being feigned to expire in agonies as the poison of the ulcer was drawn out, and its surface assumed a better aspect. Bouffey, who was a witness to their use, tells us, and probably with some truth, that they did more harm

Suckling of toads.

GEN. V. SPEC. I. Carcinus vulgaris. Common cancer. Treatment.

than good*, and dealt out more poison than they took away. The era of this invention is unknown, but it was still in use, about half a century ago in our own country if we may judge from one of the private letters of Junius to Woodfall, who alluding to the princess dowager of Wales, at that time afflicted with a cancer that destroyed her in January 1772, asserts that "she suckles toads from morning till night†."

Arsenic powder a good detergent.

One of the best detergents appears to be arsenic finely levigated and sufficiently reduced in strength by an union with calamine or some other ingredient. It is also one of the best caustics, in a simple or more concentrated state, and was freely employed as such by Mr. Justamond. Guy's powder, which we have already noticed, is used externally for the same purpose.

Sheet-lead in union with rigid compression.

We have already observed that sheets of lead, among other preparations of this metal, were applied to the cancer about forty or fifty years ago, and bound over it with some degree of pressure. But a pressure of a much severer kind together with the use of the same metallic sheeting, has of late years been employed by Mr. Young and apparently in many cases with a very salutary effect, so far as relates to checking the spread of the disease, a diminution of the tumour, and an improvement of the nature of the discharge. The plan, however, has failed in many instances; and how far it may have produced in any instance a decided cure, the author cannot positively affirm. The sheet-lead is applied with a considerable tenseness of compression by means of plaster-straps, tin-plates, folded linen, and appropriate rollers. The force employed however is less severe at first, but progressively increased; and the change of action is with much more reason ascribed to the sedative effect of the mechanical pressure than to that of the lead.

After all, when the cancerous character of the tumour

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[*] Journ. de Med. Tom. LXII.

[†] G. Woodfall's Edition, Vol. I. p. *241.

Gen. V. Spec. I. Carcinus vulgaris. Common cancer. Treatment. Little dependence on any measure but extirpation by the knife or cautery. Operation at which stage best performed.

is once decidedly established there is little dependence to be placed upon any plan but that of extirpation by a caustic or the knife. The actual cautery as employed by M. Maunoir, of which we shall have to speak more at large when discussing the genus Ulcus, may perhaps be most advantageously made use of in small cancers of the face, but the knife is the preferable instrument where the organ is large and extensively affected. Mr. Bell advises an early performance of the operation; Mr. Pearson, that we should wait till the extent of the disease has fully unfolded itself, so that no morbid part may be left behind. Yet some parts may be doubtful even at last, and, wherever there is the least suspicion of this, they should unquestionably be removed along with the more decided portion of the morbid structure.

But even this measure inapplicable to cancer in internal organs.

Even this remedy, however, can only apply to exterior organs. In all other instances, the practice is melancholy from the first. The die is cast almost, if not altogether, irrecoverably: and all we can hope to accomplish is to postpone the fatal result, to mitigate the sufferings of the day, and soften the harsh passage to the tomb.

GENUS VI.

LUES.

Venereal Disease.

ULCERS ON THE GENITALS, INGUINAL BUBOES, OR BOTH, AFTER IMPURE COITION; SUCCEEDED BY ULCERS IN THE THROAT, COPPER-COLOURED SPOTS ON THE SKIN, BONE-PAINS AND NODES.

GEN. VI. Derivation of the generic term.

THE term LUES is derived from the Greek λύω, "solvo, dissolvo"—"to macerate, dissolve or corrupt;" and agreeably to the common rule of expressing the power of the Greek υ by a Roman *y*, should be written LYES, as in the case of *Lyssa*, and *Paralysis*, both of which are derived from the same root; but lues has been employed so long and so generally that it would be little less than affectation to attempt a change: and in allucinatio, or hallucinatio from the Greek ἀλύω or ἄλυσις, we are supported by a similar example of deviation from the common rule.

Acrimonious fluids secreted by the genitals capable of producing various diseases, known from an early age; and hence alluded to by Celsus.

It appears to have been known to the world from an early age, as I have remarked in the running comment to the volume of Nosology, that acrimonious and poisonous materials are, at times, secreted by the genitals, capable of exciting local, and perhaps constitutional affections in those who expose themselves to such poisons by incontinent sexual intercourse. Celsus enumerates various diseases of the sexual organs most of which are only referrable to this source of impure contact; but the hideous and alarming malady which was first noticed as proceeding from the same source towards the close of the

GEN. VI. Lues. Venereal disease.

But all the rest merged in syphilis since its first appearance in the fifteenth century.

Hence numerous mistakes concerning the history and description of syphilis itself.

fifteenth century, and which has since been called almost exclusively VENEREAL DISEASE has suppressed, till of late, all attention to these minor evils, in the fearful contemplation of so new and monstrous a pestilence; to various modifications of which most of the anterior and slighter diseases of the same organs seem to have been loosely and generally referred; as though there were but one specific poison issuing from this fountain, and consequently but one specific malady. On which account, much confusion has arisen in the history and description of the disease; and syphilis, its most striking species, though commonly admitted, as we shall see presently, to be comparatively of recent origin, is by Plenck*, Richter†, Stoll‡, and other writers of considerable eminence, regarded as of far higher antiquity; asserted by Lefevre de Villebrune§ to have existed eight centuries before the expedition of Columbus to America, and by De Blaguy‖ to have been extant in the Mosaic age.

Hunter's correct view of the subject: confirmed by Abernethy's observations.

The keen and comprehensive mind of Mr. John Hunter first called the attention of practitioners to the idea of different poisons and different maladies; and the subject has since been pursued by Mr. Abernethy with a force of argument and illustrated by a range of examples that seem to have put the question at rest. Mr. Abernethy has sufficiently established that, independently of the specific disease now generally recognized by the name of syphilis, there are numerous varieties of some other disease, perhaps other specific diseases, which originate from a distinct, possibly from several distinct, poisons secreted in the same region from peculiarity of constitution, or causes hitherto undiscovered; and which are accompanied with primary and secondary symptoms that often vary in their mode of origin, succession, and

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* Beobachtungen, &c. II.

† Chir. Bibl. Band. I. Sect. ii. p. 163.

‡ Prælect. p. 94.

§ Retz Annales, IV.

‖ L'Art de guerin les Maladies Veneriennes, &c.

Gen. VI.
Lues.
Venereal disease.

termination, from those of genuine syphilis, though in many instances they make a striking approach to it; and to which, therefore, Mr. Abernethy has given the name of pseudo-syphilitic diseases.

Whether these diseases, so like syphilis, are distinct species, or modifications of a common species not known decisively?

Most convenient at present to regard them in the latter view.

Whether these really constitute distinct species, issuing from distinct sorts of infection, or are mere varieties or modifications of one common species produced by one common morbid secretion, has not yet been sufficiently determined. In this ignorance upon the subject, it is better, for the present, to regard them in the latter, as being the more simple, view; and with this preliminary explanation the expediency of allotting the two following distinct species to the genus lues will I think be obvious to every one.

1.	LUES SYPHILIS.	POX.
2.	—— SYPHILODES.	BASTARD POX.

SPECIES I.

LUES SYPHILIS.

Pox.

ULCERS ON THE GENITALS CIRCULAR, UNGRANULATING, THICKENED AT THE EDGE; THOSE OF THE THROAT DEEP AND RAGGED; SYMPTOMS UNIFORM IN THEIR PROGRESS; YIELDING TO A COURSE OF MERCURY; NOT KNOWN TO YIELD SPONTANEOUSLY.

Gen. VI.
Spec. I.

The vulgar term for the ulcers is *Chancres*, and the vulgar name for the disease is *Pox*, formerly *Great-Pox*[*]

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[*] De Henry, La Methode curatoire de la Maladie Venerienne, vulgairement appelleé la Grosse Verole, &c. Paris, 8vo. 1552.

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as contradistinguished from VARIOLA or SMALL-POX on account of the larger size of its blotches. It was also very generally called French Pox, as being supposed to be a gift to Europe from the French nation.

Derivation of the specific term traced differently.

There is some uncertainty concerning the origin of the specific term SYPHILIS, which was probably however invented by Fracastario about the close of the fifteenth century, from the Greek σὺ and φιλέω importing "mutual love;" for such is the title by which he has designated his celebrated and very elegant poem upon this very inelegant subject.

Origin of the disease disputed. Whether imported from America by the crews of Columbus? Question examined. Appeared in Europe too early for this.

There is an equal uncertainty as to the quarter in which the disease originated. It is usually ascribed to the American continent, and believed to have been imported into Europe by the crews of Columbus on his first or second return home in 1493 and 1496; a belief, however, which seems to be altogether without foundation, for at the period even of the first return of this celebrated circumnavigator in March 1493, it seems to have preceded this return by some weeks; since on his reaching Seville in the ensuing month of April, in order to join the Spanish army, it had already arisen and was spread over Auvergne, Lombardy, and various other parts of Italy; as, in the course of the summer months, it was observed in Saxony, Brandenburg, Brunswick, Mecklenburg, and especially Strasburg, as all the German writers concur in admitting; while Fracastorio, who was an eye-witness of the entire progress of the disease, and from his high medical reputation, and residence almost on the spot of its first appearance, more largely engaged in the cure of it than any physician of his day, asserts that it was even ravaging a considerable part of Asia and Africa as well as of Europe: "Europam," says he, "ferè omnem, Asiæ verò, atque Aphricæ, partem

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* See especially Meiner, Sitten des mittel alten.—Stumf, Schweitzer Chronick, Lib. XIII.—Stettler, Schweitzer Chronick, Lib. VII.—Sprengel, Geschichte der Arneykunde, Theil. II.

non parvam occupavit*." The writer proceeds to notice the dispute that was then hotly engaged in as well concerning the nature as the origin of the disease, and again expresses his disbelief in its having been imported from America by the crews of Columbus. On this account, he feels himself at liberty to give it a very early origin in his poem upon the subject, and describes his fictitious hero Syphilus as having brought down the disease upon himself and the world at large, as a curse for having insulted Apollo, while tending the flocks of king Alcithous.

> Protinus illuvies terris ignota profanis
> Exoritur: primus, regi qui, sanguine fuso,
> Instituit divina, sacrasque in montibus aras,
> Syphilus; ostendit turpes per corpus achores,
> Insomnes primus noctes, convulsaque membra
> Sensit, et à primo traxit cognomina morbus:
> Syphilidemque ab eo labem dixêre coloni.

One of the earliest German writers who ascribed the disease to the return of Columbus is Leonard Schmauss, a physician of Strasburg, whose works were published in 1518; but neither his history nor his arguments are in any degree satisfactory: while his countryman Matern Berlen, a clergyman of Ruffach, and an eye-witness of the disease on its first appearance, assigns it a very different origin; and in his history of the Italian expedition of Charles VIII. declares it to have been a punishment inflicted by the Almighty on this monarch and his subjects, in consequence of his having carried off the Duchess Anne of Bretagne from the Emperor Maximilian, to whom she had been betrothed.

Among the Spanish writers, there are two chiefly who ascribe the origin of syphilis to an American source; while others, by their silence upon the subject when detailing the particulars of the return of Columbus, give sufficient evidence that they disbelieved the report. Of the two who thus contributed to spread it, one of them,

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* De contagiosis morbis.

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Gonçalvo Hernandez de Oviedo, affirms that it was conveyed into Italy by Cordova's fleet, which, however, did not arive in Italy (Messina) till May 24, 1495, and consequently not till two years after the disease had existed there. The other is Sapelveda, who, in a history of America, written in a good Latin style, towards the middle of the sixteenth century, roundly asserts that "ex *Barbaricarum* mulierum consuetudine Hispani morbum contraxerunt." But as this writer does not, like his contemporary Francastorio, enter into the particulars of the controversy, his assertion can go no farther than to the weight of his own individual opinion in a controverted case.

Antonio de Herrera.

Amongst those who have been most full in their accounts of the voyages of Columbus and the discovery of America, we may certainly reckon Antonio de Herrera. He fixes the return of Columbus at the period above specified; and is very particular in detailing the order sent to Lisbon to him, on the moment of his arrival, to follow the Spanish court to Barcelona, to which city it was then removed; the highly honourable reception the circumnavigator received; the preparations which were immediately made for his second voyage; the speed with which these preparations were accomplished; and the instructions given to him on the occasion. Yet not a hint is added that his crews were unhealthy, that the new recruits had any dread of the plague, to which, had he brought it home, they must have known they were about to be exposed, nor a single instruction to be provident of their health in this respect. He took leave of the royal pair with every mark of distinction, the whole court accompanying him to his house, as well at the time as when he quitted Barcelona. "*Despidòse,*" says Herrera, "*de los Reyes, y aquel dia le acompanò toda la Corte de palacio à su casa, y tambien quando saliò de Barcelona**.

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* Hist. Gen. de las Indias occidentales, Decad. I. L. II. C. V.

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Lues Syphilis.
Pox.

Syphilis arranged by Linnéus as an exanthem.

His ground for so doing.

Linnéus stands alone in arranging syphilis as an exanthem, along with small-pox and measles. He thought himself justified from the fever which occasionally accompanies the copper-coloured spots on the skin, in an advanced stage of its secondary symptoms: or perhaps from the fever which, on the first appearance of the disease unquestionably accompanied it, and uniformly preceded the eruptions. For it is an extraordinary fact, to which all the contemporaneous writers bear witness, that syphilis, when it first broke forth upon the world, and, indeed, as it is described in Fracastorio's poem, was not only called the plague, but was, in truth, a specific fever attended with most violent putrid symptoms, together with carbuncles, buboes and other glandular abscesses, which discharged a malignant sanies, often fatal, and even, when recovered from, leaving the most melancholy marks of its ravages.

Syphilis at first regarded as a species of plague and marked at once by malignant and fatal symptoms.

And hence, in many places, the infected were as much exiled from the community by a line of circumvallation drawn around them, as in the case of plague. In Scotland, indeed, they were strictly prohibited all medical assistance, and inhumanly left to the effects of their own licentiousness. For Mr. Arnot gives the copy of an order from the privy council of Edinburgh, which equally banished to the island of Inck-Keith those who were affected with the disease, and those who undertook to cure it*.

Has grown gradually milder.

By degrees, however, the disorder appears to have assumed a chronic form, and at length so far changed its nature, as to make its attack without fever, and to remain local except from absorption. It seems still, indeed, to be continuing its course of amelioration notwithstanding the assertion of Dr. Schwediauer †, that it has not assumed a more mitigated character at present than in former times, for very severe cases are now much

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* History of Edinburgh, by Hugo Arnot, Esq. 4to. 1789.

† Beobachtungen, &c. p. 172.

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rarer, not only in private practice but even in public hospitals, than they were thirty or forty years ago.

It is possible that this change may have been produced by two causes; firstly by the virus wearing out its own strength and becoming milder as it descends to different individuals and generations, and has to cope with the force of sound constitutions, and, perhaps also, with a perpetual instinctive power or vis medicatrix naturæ, constantly labouring to subdue it: of which we shall hereafter have occasion to offer other examples than the present. And secondly, it is also highly probable that the frequent and, indeed, universal use of mercury for its extermination has succeeded, as a specific, in softening its violence, in the same manner as we know the virus of cow-pox succeds in giving a milder character to small-pox even where it does not altogether answer as a prophylactic.

Syphilis distinguished by symptoms local and constitutional.

Syphilis shows itself under two distinct sets of symptoms, local and constitutional, the latter of which is commonly, but not always, a sequel of the former.

Usually produced by impure coition: sometimes by other means.

In which way soever it is produced it is usually by means of impure coition; though we shall have occasion to show presently that syphilitic matter coming in contact with any part of the surface of the body where it is capable of burrowing and meeting with a little mucus, sweat, or, perhaps, any other natural secretion, is capable of assimulating it to its own nature, and hence of introducing the disease into the system by absorption; and consequently without any breach of surface. And hence, as other parts than the sexual organs may be a medium of communication, no local symptoms may in some instances ensue, and the constitutional signs be the first to manifest themselves.

First stage, consisting of primary local symptoms. Chancres what?

The earliest ordinary mark, however, that infection has taken place, is the appearance of one or more minute pimples of a peculiar kind which are called chancres; having a hard inflamed base, of a pale red hue, and an irritable apex, at which it opens with a small eye-let, becomes ulcerated, and discharges a small por-

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tion of limpid virus, that produces fresh chancres wherever it spreads. In the common mode of infection the chancre shows itself on the prepuce, glans, and orifice of the urethra in men, and about the labia, nymphæ, clitoris, and lowermost part of the vagina in women. This mark sometimes appears as early as the third or fourth day after coition, more generally, however, a few days later; and in some instances, where the cutaneous absorbents possess little irritability, not till a lapse of several weeks. The chancre occasionally continues blind, and degenerates into a hard and irritable wart, with which the genitals are frequently studded, sometimes as low down as the anus.

Bubo, its description and progress.

Another local symptom is the formation of a bubo in one or both groins, evidently produced by an absorption of the virus first deposited, or, as is more commonly the case, generated in the ulcerated chancre, communicated to the lymphatics, and hence to the inguinal glands, which in consequence becomes inflamed and tumefied. The tumour, when first perceived, is small, but hard, fixed and diffused, with a somewhat obtuse pain. It enlarges gradually, and becomes more acutely painful, so as to render walking troublesome; and if not opened by the lancet, generally bursts by the time it has reached the size of a pullet's egg, and discharges a copious quantity of pus from a single hollow. In a few instances, the suppurative inflammation does not follow, and the tumour as it augments acquires a scirrhous induration.

Ocasional inflammation of spermatic chord.

Sometimes also, the inflammation extends by sympathy to the spermatic chord, which is inflamed and rigid through a great part of its course, while the testes themselves are tender and considerably swoln.

Sometimes of urethra; with a purulent discharge resembling that of gonorrhœa:

And occasionally from sympathy also, or an entrance of a part of the received virus into the urethra, its mucous membrane becomes inflamed and pours forth a considerable secretion of pus or purulent mucus, resembling that of a blennorrhœa, or gonorrhœa as it is commonly

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called, or the purulent discharge from the eyes in purulent opthalmy.

and formerly mistaken for it, whence the two diseases regarded as one and the same.

This was at one time mistaken for a genuine gonorrhœa, and the two diseases were very generally regarded as only different modifications of one and the same species. And some practitioners continue to be of the same opinion still, notwithstanding all the facts that have been adduced in proof of their being distinct maladies produced by distinct kinds of contagion. The local symptoms of syphilis, chancres, and buboes are perpetually occurring without gonorrhœa, and gonorrhœa without chancres and buboes. Insomuch, that there are not wanting practitioners who affirm that they never occur together unless the two venoms are received simultaneously. And there is no doubt that this assertion is true in regard to a genuine gonorrhœa; but from the cause already stated, a large flow of pus or purulent matter, and a general irritation and enlargement of the body of the penis, in appearance strongly resembling the symptoms of a genuine gonorrhœa, sometimes coincide with the primary signs of a syphilis, of which a very marked case occurred to me only a few weeks ago which I showed to an eminent surgeon of this metropolis who had antecedently been incredulous upon this point. But the clearest and most incontrovertible proof of distinction between the two diseases is, that in no instance whatever has a simple gonorrhœa, unconnected with bubo or chancre, produced those secondary or constitutional symptoms to which the proper local signs of syphilis are sure to lead if not corrected in their progress.

Proofs of distinction.

Second stage: consisting of secondary or constitutional symptoms.

These symptoms are a peculiar affection of the mucous glands of the fauces and mouth, which eliminate syphilitic poison along with their proper secretion, whence the tonsils, uvula, palate and tongue, progressively become sore and ulcerated, the voice is rendered hoarse, and the swallowing difficult. The ulcers about the fauces are of a distinctive character, being foul and rugged, with an excavated centre covered with a brown or

Ulcerated throat and mouth.

whitish slough, and surrounded with a hard, red, elevated and erethematous outline.

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Inflamed eyes.

The mucous membrane of the conjunctive tunic of the eyes next suffers in the same way, and displays an inflamed surface with ulcerations on the eye-lids and angles of the eyes. The skin is, in various parts, covered over with copper-coloured spots, which at first desquammate in scurfs, afterwards in scales, and still later in scabs; each of which leaves a foul ulcer that gradually grows deeper, and discharges an offensive and acrimonious fluid.

Copper-colored spots on the skin.

Pains in the limbs and bones.

As the disease advances, irregular pains shoot through the limbs, and are felt so severely at night as to prevent sleep. By degrees they strike into the bones, which become diseased, and in many places swell into nodes, which at length grow carious: while the ulcerations about the fauces spread at the same time, or even before this, to the adjacent bones of the palate and nostrils which are gradually eroded and carried away; so that the speech is rendered nasal and imperfect, and the nostrils are flattened to the level of the cheeks.

Nodes.

Caries of various bones especially of the nose and palate.

Countenance sallow.

Loss of hair and appetite.

Hectic fever.

Finally, the countenance grows sallow, the hair falls off, the appetite is lost, the strength decays, and a low hectic preys upon the system, and at length destroys it.

Disease remains in a local form to an uncertain period: as well as dormant in in the system.

It is not easy to say how long the matter of syphilis, when once communicated, may remain limited to the local symptoms of chancres or buboes, or continue inert in the system where no local symptoms have taken place; or what period must intervene before a patient may be pronounced safe after having exposed himself to contamination. We have already seen that the primary, or local signs generally manifest themselves within four or five days; and, where the constitution has become infected without them, we have reason to expect the appearance of the secondary symptoms soon after three weeks, or from this time to six months: and, if this latter interval have passed without the slightest manifestation of mischief locally or generally, we have little reason to fear for the issue. It has been said, however,

Local symptoms often appear about four or five days after infection.

Contitutional from a period of three weeks to six months.

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Has been said to lurk for several years. but very rarely if ever.

Yet the assertion supported by Hahnemann and Hey.

that the poison has lurked unperceived for several years: yet it is rarely that such an assertion is made except for the purpose of excusing some fresh infection. I should, indeed, have been disposed to think it had never been made otherwise but that Dr. Hahnemann has referred to an instance or two to the contrary in which he places full confidence *; and particularly that the late Mr. Hey of Leeds, whose authority is indisputable, has offered it as his opinion, formed from a variety of cases that had occurred to him during an extensive practice of nearly three score years, that a man may communicate the disease after all its symptoms have been removed and he is judged to be in perfect health; and that a mother who has been once affected may convey it, notwithstanding an apparent cure, to two, three, or four children in succession, each of whom he supposes will have it in a milder form than the preceding one; as though it were gradually ceasing in the constitution, though it still continued to show some degree of activity †.

Hence some constitutions more susceptible of the virus than others. Sometimes received by simple contact through an unbroken skin: by sucking an infected nipple:

It is obvious, however, that in syphilis, as in various other diseases produced by the absorption of specific virus, different constitutions are differently affected, and that some are far more susceptible of the morbid action than others. In many instances, it is received by simple contact alone and through an unbroken skin. It is generally, perhaps, thus received in the ordinary course of connexion; but still more evidently thus in other cases, and by other organs; for it has been very frequently caught by sucking the nipple of an infected wet-nurse; by infected saliva communicated in kissing; by drinking out of a cup that has previously been used by a syphilitic patient ‡; and it is said to have been produced by

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* Hahnemann, Unterricht für Wundarzte über die Venerischen Krankheiten. 8vo. Leips. 1789.

† Facts illustrating the effects of the Venereal Disease. By William Hey, Esq. F.R.S. 1816.

‡ Reid, Diseases of the Army, &c. Gruner, die Venerische Austehung durch gemeinschafftlische Trinkgeschirre. Waissenfels, 1787.

receiving infected breath[*], and lying in a bed which had been antecedently occupied by a person labouring under the disease[†]: in some of which cases, however, it seems necessary to suppose the existence of a cut or crack or some other breach of surface in the skin, and particularly about the lips, with which the syphilitic virus must have come into union. And it is hence easy to conceive how much more readily it may be communicated by the insertion of an exotic tooth[‡], by bleeding or scarification with an infected lancet[§], or by the attendance of an infected midwife[||], who has sometimes given the complaint both to the mother and the child.

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by infected breath:

by the insertion of an exotic tooth: an infected lancet: or the attendance of an infected midwife.

A very melancholy instance of infection is related by Dr. Barry of Cork, communicated by a woman who was in the habit of drawing the breasts of puerperal patients, and who, upon examination, was found to have chancres on the lips and roof of her mouth; probably caught from some impure person in the course of her vocation. From the numerous engagements of this woman, the disease had spread very widely; and the rapidity of its progress was as striking as the manner of its communication. " The nipple," says Dr. Barry, " first became lightly inflamed, which soon produced an excoriation, with a dicharge of a thin liquor: from whence red spreading pustules were dispersed round it and gradually spread over the breast, and, where the poison remained uncorrected, produced ulcers. The pudenda soon after became inflamed, with a violent itching, which terminated in chancres that were attended with only a small discharge; and, in a short time after, pustules were spread over the whole body. It finished this course, with all these symptoms, in the space of three months. The disorder made a quick and rapid progress in those who first received it,

Melancholy example.

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[*] Reid, Diseases of the Army, &c.

[†] Horstius, opp. II. p. 315.

[‡] Watson, Medical Transaction. Vol. III. p. 325.

[§] Girtanner, die Venerischen Krankheiten, &c. p. 165.

[||] Act. Nat. Cur. Vol. VII. Obs. 75. Vol. IX. Obs. 94.

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they not being apt to suspect an infection of this nature in their circumstances. The husbands of several had chancres, which quickly communicated the poison and produced ulcers in the mouth, and red spreading pustules on the body. But such of them escaped who had timely notice of the nature of the disease before the pudenda were affected. Some infants received it from their mothers, and to the greatest part of them it was fatal *."

Where a wet-nurse and the infant she suckles are both affected, and there is a doubt which has communicated it to the other, collateral circumstances will assist us much: but where the one, as is usually the case, has constitutional symptoms, and the other only local, the former must have had the disease longest, and consequently have been the source of contamination.

Some constitutions insusceptive of the disease.

Illustrated.

Such, however, is the unsusceptibility of some idiosyncrasies, that the matter of syphilis like that of small-pox, seems to have no effect upon them, and they are proof against its activity. I once knew a young physician who finding himself to be thus naturally protected, fearlessly, and for the sake of experiment, associated himself with females in the rankest state of the disease, and escaped in every instance. In like manner Schenck † gives us a case of an infant rendered syphilitic through a diseased father, while the mother remained unaffected; and Mauriceau and other writers, give cases of infants which have been fortunate enough to avoid infection though born of syphilitic mothers ‡: while Pallas asserts that the Ostiacks have a general immunity from the disease under whatever form it offers itself §.

The Ostiacks generally insusceptive

Remedial process.

Various classes of medicines ordinarily employed.

The medicines which have been chiefly had recourse to, or have been found most serviceable in curing syphilis or arresting its progress, are narcotics, diluent diapho-

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* Edin. Med. Essays, Vol. III. Art. XXI. p. 297.

† Observ. Lib. VI. N. 21.

‡ Mauriceau, II. p. 100. 377. Eph. Nat. Cur. Cent. III. IV. Obs. 18.

§ Reisen, III. p. 50.

retics, diuretics, drastic purgatives and those which introduce a large portion of oxygene into the system; practitioners having directed their attention at different times to rendering the vascular fibres inirritable to the specific acrimony of the disease, to expelling it by some of the emunctories opening externally, or to dulcifying it by a chemical combination.

Narcotics.

Of the narcotics, recourse has been chiefly had to opium, conium, solanum, and bella-donna, manifestly upon the principle of their being sedatives, and hence rendering the system inirritable to the syphilitic virus. This some of them accomplish in a very considerable and desirable degree; and particularly opium which has been mostly trusted to, and tried upon a wider scale than any of the rest. It moderates and alleviates every symptom; and, from a cause not well ascertained, may be taken in very large doses with less inconvenience in syphilis than in almost any other disease. From its palliative effects it has been supposed by many practitioners capable of producing a radical cure; and numerous accounts to this purpose have been published by those whose judgements have been unduly prejudiced in its favour. On these accounts it is not necessary to enlarge: they have been long before the world, and have called forth other trials which have not proved equally successful. Narcotics in general, and opium beyond the rest, add considerably to the efficacy of other means, and particularly of mercury; but of themselves they are not competent to remove the complaint, and consequently are not to be depended upon.

Opium.

Its great use as a palliative.

Hence has been supposed to produce a radical cure;

but erroneously.

Warm diaphoretics.

The list of warm and diluent diaphoretics that have been employed as remedies in syphilis are very extensive; but it may be sufficient to enumerate the following: mezereon, guiacum, sarsaparilla, saponaria, bardana, smilax, and one or two species of asclepias or swallowwort.

All these are supposed to be serviceable by exciting a determination to the skin, and throwing off the syphilitic poison, as various other poisons are thrown off, from the

Their action how far useful: most so in warm climates.

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surface: and in very warm climates many of them are said to operate a radical cure; though the statements to this effect are rarely such as we can depend upon. Some of them, moreover, as the saponaria or soap-wort, and smilax or china-root, possess a viscid or unctuous principle, which has been supposed of use in obtunding the acrimony of the poison, and thus blunting its effects even before it is discharged from the body. The soap-wort has the advantage of being found in the hedges of our own country.

Sarsaparilla chiefly employed at present.

They have all had their day, and the only one at present in much request is sarsaparilla, of the actual amount of whose virtues it is difficult to speak with precision. Like the lobelia *syphilitica* or blue cardinal-flower, which is a purgative plant, it owes its earliest reputation to the American tribes; and when first imported into Europe by the Spaniards about the year 1563, it had the character of being a specific for the venereal complaint. From being extolled, however, too highly, for it has never fulfilled this character in the old world, it has since sunk, like many other useful medicines, into a very unmerited contempt, insomuch that Dr. Cullen allows but eight lines to its history and qualities, in the course of which he tells us that if he were to consult his own experience, he would not give it a place in the Materia Medica, as he has never found it an effectual medicine in syphilis or any other disease *. The London College, however, have evinced a different opinion, for they have adopted it under various forms: and Dr. J. Thomson, of the Depôt Hospital, Edinburgh Castle, has been so highly satisfied with its antisyphilitic powers, that he has for some years relinquished the use of mercury altogether in favour of a new mode of practice, which consists chiefly in the employment of sarsaparilla †. Upon a very large scale he has met with very great suc-

Estimate of its virtues.

Totally discredited by Cullen.

Strongly recommended by Thomson as capable of effecting a cure:

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* Mat. Med. Part. II. Chap. v. p. 200.

† Edinb. Med. and Surg. Journ. No. LIII. p. 84.

Treatment. yet less readily than mercury.

cess; though he candidly acknowledges that the secondary symptoms of the disease have required a longer time to be overcome under the new treatment than they would under a mercurial. Its fair pretensions appear to be those of a mild stimulant and diaphoretic. It is hence in many cases a useful auxiliary to mercury: but I have chiefly found it succeed in chronic cases where the constitution has been broken down perhaps equally beneath a long domination of the disease and a protracted, and apparently inefficient, mercurial process. In connexion with a milk diet and country air, and with a total abandonment of mercury, I have here often found it of essential importance, and have seen an incipient hectic fall before a free use of it in a week. Its best form is the old one of the decoction of the woods.

A useful auxiliary: and highly serviceable where mercury has itself produced disease.

The syphilitic poison has also been often attempted to be thrown out of the body by exciting the excretories of some other organ than those of the skin or in conjunction with them. Thus the flammula Jovis, or upright traveller's joy, the clematis *recta* of Linnéus, which acts powerfully both on the surface and on the kidneys, is said to have been employed with great advantage, and was at one time in high and extensive estimation. It was given in the form of an infusion of the leaves, and Dr. Storck, with his usual liberality, assigns it an extravagant praise, informing us that it effectually subdues all the secondary symptoms of inveterate head-aches, bone-pains, nodes, ulcerations of the throat, and cutaneous eruptions *.

Flammula Jovis.

The lobelia *syphilitica* of the American Indians has a still fairer claim to notice. It is a drastic purgative, uniting something of the stimulant and narcotic powers of tobacco, to which it has some resemblance in its taste. In the simple life and inirritating diet of the American tribes, it is possible that it may have proved as success-

Lobelia syphilitica.

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* Libellus quo demonstratur herbam veteribus dictam flammulam Jovis posse tutò exhiberi. Vienn. 1769.

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ful as it is stated to have done; but it has completely failed in Europe.

Oxygenous antisyphilitics.

O the antisyphilitics, whose influence seems to depend on their being loaded with oxygene, the principal are the mineral acids, and the metallic oxydes.

Acids. Nitric and sulphuric.

Of the first, the nitric has chiefly been made a subject of experiment in our own country, though the sulphuric has been employed abroad *. How far it exercises a chemical power upon the syphilitic virus, and forms a new and blander substance with it, is uncertain. Its general effects are, as we might expect them to be, tonic and sedative; whence the appetite is increased, a greater rigidity or firmness is given to the living fibre, and a greater density to the coagulable lymph: the action of the bowels and even of the bladder being diminished. Besides these, it has a particular effect on the mouth approaching to that of ptyalism, for the gums are rendered slightly sore, the mouth and tongue become moist, and in India and other warm climates a real salivation is said to ensue. Under this change the syphilitic symptoms assume a better appearance, and especially those that belong to the primary set: but we have no decided case in which a perfect cure has been accomplished in our own country; though Dr. Scott affirms that in India this has been common. The acid he was in the habit of employing was a direct aqua regia as already noticed in the treatment of jaundice †; and with the internal use of this, he combined that of the acid bath as there also particularly specified. His object was to effect a cure without incurring any of the evils so frequent upon a mercurial course; and to this object the proposed plan has, in his opinion, given complete success. It would have been happy for the world if this success had been permanent and universal; but the plan has since fallen in its reputation not much less in India than in Europe.

Their pretensions and effects.

Aqua regia, said by Scott to produce a radical cure in India.

Has not been found to succeed of late.

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* Crato. Epist. v. p. 293.

† Vol. I. Cl. I. Ord. II. Gen. I. p. 380.

Gen. VI. Spec. 1. Lues Syphilis. Pox. Treatment. Metallic oxydes. Arsenic.

The metallic oxydes have offered a large field for experiment; and almost all the metals have been had recourse to in rotation, as copper, iron, antimony, mercury, arsenic, and even gold.

The pretensions of arsenic are certainly considerable: it forms the ordinary medicine employed in syphilis by the cabirajas or native Indian physicians, who depend upon it as a specific. They give it in the form of white arsenic in combination with black-pepper, as we shall notice more at large when treating of elephantiasis, for which also it is esteemed a powerful remedy. The only auxiliary is a cathartic of manna dissolved in a decoction of nymphæ *nelumbo*.

Gold.

Of the effects of any of the preparations of gold we know but little. Many of them were in high repute formerly as a cure for various cachexies, and are said to have been used with success in syphilis*. They have since been repeated in France, and are reported to be entitled to all the distinction they have at any time attained; but as a train of experiments upon this subject is still in hand we may hope for more certain information in a short time†.

Antimony. Mercury the only medicine to be relied on in every stage.

Antimony, and perhaps a few other metals are useful auxiliaries; but, in fact, the only metal, and I may add the only medicine, on which we can confidently rely for a perfect cure of syphilis in all its stages in our own climate, is mercury.

All its preparations succeed if sufficiently introduced.

This has been tried from an early period in almost every variety of preparation; and, provided a sufficiency of it is introduced into the system, in every variety it has been found to succeed: so that in the present day the peculiar form is regarded of less importance than on its first use; though we may observe that it seems to be most rapidly efficacious in those forms that introduce the

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* Agricola, Comment. in Pappium, Nürn. 1643.—Ochmen, Feldchirurgus, 8vo. Fr. and Leips. 1750.

† See the Report of A. S. Duportal, M. D. and Th. Pelletier, Apoth. Annales de Chemie. Tom. LXXVIII. p. 38.

Gen. VI. Spec. I. Lues Syphilis. Pox. Treatment.

largest proportion of oxygene into the system. And as it operates chiefly, like most other medicines, through the medium of circulation, when it once becomes mixt with the current of the blood it is equally efficient in the cure of a recent chancre, and a chronic ulceration of the throat.

Its virtues and general action.

Mercury is an universal stimulant, and increases the action of all the secretories at one and the same time; for it operates simultaneously on the intestines, the skin, the salivary glands, and even the bladder; though it displays itself chiefly by its action on the salivary glands. It has also, when given in moderate doses, considerable pretensions to a tonic power, though this is overwhelmed by its stimulant effects when the dose is considerably increased. It seems therefore to unite most of the virtues of the preceding remedies, excepting the sedative; and hence it is greatly improved by the addition of opium and camphor, which give it the quality it stands in need of.

Seems to possess some specific in addition to its general virtues as an antisyphylitic.

Independently, however, of its combining in itself many of the virtues of the preceding remedies mercury seems also to possess some specific virtue unknown to the rest; for we can associate all the general qualities by a combination of different medicines without producing the same result. Mercury, indeed, to these general qualities adds that of peculiary stimulating the salivary glands, which the other remedies employed in syphilis do not at all, or never in an equal degree; but that its specific power as an antidote does not depend upon its being a sialogogue is clear, because while it has sometimes excited salivation without effect, it has at other times produced a perfect cure without any salivation whatever, for in some idiosyncrasies the salivary glands are not affected by its irritation.

This not dependent on its being a sialogogue.

Dr. Cullen, however, who had a mortal aversion to considering any medicine in the character of a specific, denies that mercury is a specific in syphilis, as he does also that it is an attenuant of the blood or an antidote to the disease. It is in vain to point out to him its specific

Denied by Cullen to be a specific or antidote or to attenuate the blood.

influence upon the salivary glands, or its specific action upon their mouths; he denies the whole, and contends that mercury might travel, and perhaps would travel for ever in some other direction, were it not for the friendly interposition of the ammoniacal salts of the blood, which he fancies to have a close affinity with mercury as they have also with the salivary glands; in consequence of which, they take the mercury by the hand and introduce the one stranger to the other *: thus solving the difficulty like a divinity in the catastrophe of a drama. The result of the whole, in the opinion of Dr. Cullen, is that mercury cures the venereal disease, not by producing any change in the state of the fluids, but entirely by giving a stimulus to the excretories at large, by whatever contrivance it reaches them, and thus increasing the excretions and washing out the poison from the body.

His hypothesis to account for its action.

Hence in his opinion is only serviceable as an irritant to all the excretories.

That it does this is highly probable; but this alone is not sufficient, for fresh poison is continually forming by the process of assimilation, or the conversion of some part of the fluids it comes in contact with into its own nature; since if it were not so, and the minute drop of virus that excited the disease at first remained without any increment, there can be no question that such a general scouring of the system would be unnecessary, and that the ordinary evacuations would be sufficient to throw it off. And hence we have not only to carry away the poison that is actually present in the vessels but to prevent the formation of new.

This view not sufficient to account for its salutary effects.

Now it is in this power of prevention that the specific virtue of mercury seems to consist; and this it is that renders it paramount to all other remedies in the cure of syphilis. It is not only an evacuant but an antidote. By what means, however, it becomes an antidote, or exerts its specific power, we know not. The matter of a chancre mixed up with a quantity of Plenck's gummy solution of mercury has been applied to a sound person

In what its specific virtue seems to consist.

This virtue how exerted.

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* Mat. Med. Part II. Ch. XVII. p. 443—450.—See also the present Work, Vol. I. p. 77.

Gen. VI. Spec. I. Lues Syphilis. Pox. Treatment. Whether by a chemical combination with the venereal virus?

without occasioning either a chancre or any other syphilitic symptoms. And it has hence been supposed that mercury neutralizes the syphilitic virus, and produces a third and harmless substance. As it has been further supposed that it is by the disengagement of the oxygene which the various preparations of mercury introduce into the system that this effect is accomplished. All this is ingenious and may be true, but the evidence does not come home to the conclusion. Even the experiment with chancrous matter and the mercurial solution has not been satisfactorily performed; and if the result were as here stated, the matter while it has no power of assimilating the solution into its own nature, as it has the fluids of the human body, may only have been rendered inert by simple dilution.

or by a disengagement of oxygene.

Oxymuriate formerly preferred to other preparations. Afterwards calcined mercury.

We have said, that provided a sufficient quantity of mercury be intoduced into the system, the particular preparation is of no great importauce. Van Swieten preferred the oxymuriate, and every one followed his example. The calcined mercury came next into popularity and triumphed over every other form. It was the leading article of most of the secret remedies that were sold for the complaint and especially of Keyser's pills, the receipt for which was purchased with great formality by the French government, with an express provision not to make it public till the inventor's death*. These pills, however, which consisted of nothing more than mercury calcined by a needlessly operose elaboration, and mixed up with manna, were found in many cases to irritate the bowels even when united with aromatics and opiates; and hence they gradually yielded on the continent to Plenck's solution, which still holds a considerable sway.

Keyser's pills.

Mercurial pill.

In our own country, it is now most usual to employ the mercurial pill, or calomel, either alone or together with

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[*] Des Dragées, ou Pilules de M. Keyser. Par Richard de Hautesierck. Recueil d'Observations de Medicine des hopitaûx Militaires, &c. Paris, 1766.

Treatment. Calomel: Mercurial ointment. Large doses often mischievous. Salivation not always necessary.

mercurial ointment. Yet, whatever plan is preferred, much caution is necessary in carrying it into effect; for the older practitioners who employed larger doses did as much mischief to the constitution by the antidote as it had received by the infection. If calomel be employed, about two grains a day will be sufficient, guarded when necessary by a grain of opium, and if the ointment be preferred half a drachm of the strong mercurial ointment may be rubbed in night and morning. If the disease be not severe or of long standing, it will not be necessary, with a little management, to produce salivation, which in most instances may be regarded only as a test that the system is thoroughly impregnated with the medicine: but in chronic cases we ought not to be satisfied without it.

Caution necessary when employed.

In all cases of its use, but particularly in cases of salivation, care should be taken to avoid cold, and flannel should be worn next the skin; for it is important that the excretories should harmonize in an increased defluxion. It is also of importance that the diet be light and simple, as the pulse is usually accelerated, and, by a stimulating regimen, would be so much quickened as to do serious mischief. Mr. Hunter lays no stress upon this point but it ought by no means to be neglected.

If a buboe have formed in the groin the mercurial ointment is best rubbed in a little below it, as it would increase the inflammation if applied to the tumour itself. In about a week or ten days, the mouth will become slightly sore, when the further use and proportion of the ointment or other preparation must be regulated by the violence or duration of the complaint. Where salivation is determined upon, the flux shonld be suffered to continue for about a month.

Mercurial erythema.

An injudicious use of mercury, or indeed any use of it, in highly irritable habits, will sometimes excite a very troublesome erythema that spreads itself in trails or patches over the whole surface; commonly however commencing about the genitals, and lower limbs. It is accompanied with a painful tenderness and itching of the skin, and, as the erythema meanders onward, the trails or

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patches first observed heal as new ones make their appearance. We have already glanced at this affection under the vesicular species of ERYTHEMA*. Mercury must in this case be desisted from, the bowels be loosened with some gentle aperient and the irritability opposed by sedative and mild cardiacs as camphor, guaiacum, and sarsaparilla; and particularly by the mineral acids.

SPECIES II.

LUES SYPHILODES.

Bastard Pox.

ULCERS INDETERMINATE IN THEIR CHARACTER; SYMPTOMS IRREGULAR IN THEIR APPEARANCE; USUALLY YIELDING SPONTANEOUSLY; VARIOUSLY AFFECTED BY A COURSE OF MERCURY.

Gen. VI. Spec. II.

I HAVE already observed at the opening of the present genus that the species before us is designed to include a multiplicity of affections which in many of their signs have a close resemblance to syphilis, but differ from it in the progress of the symptoms as well as in the means that are necessary for a cure.

Syphilodic lues of antiquity.

Such affections are of high antiquity, and some of them appear to be glanced at in the sacred records. By Celsus the subject is touched upon scientifically: it has been taken up in modern times by Mr. Hunter with that spirit of inquiry which peculiarly distinguished him†, and has

Subject lately pursued by Hunter and

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* Vol. II. Cl. III. Gen. VI. p. 312.

† Treatise on the Venereal Disease.

GEN. VI. SPEC. II. Lues syphilodes. Bastard pox. Abernethy

since been pursued by Mr. Abernethy with a kindred comprehension and genius*. The subject, however, is still in its embryo. Mr. Hunter considered his own remarks rather as hints for others to prosecute than as a complete account of it. And though Mr. Abernethy has accumulated facts and cases, and ably illustrated them with observations that sufficiently establish these hints, and give something of a body to the outline, we are still in want of distinctive characters, and cannot determine with any degree of accuracy whether the wide group of complaints that fall within the present range of contemplation, are mere varieties of a common species produced by a common poison, or distinct species dependent upon distinct poisons, as discriminate from each other as all of them are from proper syphilis.

Still open to investigation.

It was regarded by Mr. Hunter as a pathognomic character of syphilis, first that it never ceases spontaneously; secondly, that it is uniform and progressive in its symptoms; and thirdly, that it is only to be cured by mercury.

Pathognomic marks of genuine syphilis.

How far the last position may admit of such a modification as may leave it open to occasional exceptions in other climates, it is not worth while to inquire. In our own, the whole of these dicta stand upon a rock of facts progressively accumulating and confirmed by every day's experience. And the family of complaints included under the name of bastard-pox, or pseudo-syphilitic disease are in direct contradistinction to all of them; for they are perpetually giving proofs of a spontaneous cessation; they are irregular and desultory in their symptoms; seldom require a mercurial treatment, and are often exasperated by it.

As opposed to the diseases of the present species.

In illustration of these remarks, I might refer to the observations of those who have been attentive to the subject on a large scale; but I refer more particularly to the collection of cases which Mr. Abernethy has printed in the work already adverted to.

The disease ordinarily commences with local sym-

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* Surgical Observations on Diseases resembling Syphilis. Lond. 1810.

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General description.

ptoms, though not always: but the local symptoms have a less resemblance to those of genuine syphilis than the constitutional by which they are succeeded. A few foul and highly irritable sores are unexpectedly discovered on the genitals, commonly larger than chancres, and less thickened and indurated, about the size of a sixpence, and frequently sprouting with fungous granulations. Rarely, but very rarely, they have the guise of a true chancre: so rarely, indeed, that of the twenty cases contained in Mr. Abernethy's book, the fifth is the only one that answers to this description. These are sometimes succeeded by buboes; and sometimes not. And where buboes take the lead they run their course more rapidly, and with more violent inflammation than in the true disease, and spread to a greater number of circumjacent glands. These often heal by the ordinary means without mercury, or constitutional symptoms of any kind. But not unfrequently, in a few weeks or months they are followed by a soreness and ulceration of the tonsils, copper-coloured spots over the body, and nodes or swellings of the periosteum in various bones; and sometimes these symptoms change their order of succession, or appear single.

Proper chancre rare.

Constitutional symptoms sometimes take the lead.

In a few instances, the constitutional symptoms take the lead and the local follow, of which Mr. Abernethy's fourth case affords an example. The patient here perceived, first of all, a small ulcer on the breast near the nipple, after having suckled a nurse-child about four months. It was of the size and shape of an almond, and was ascribed to the child's having a sore nose and lips. A gland in the axilla soon swelled and subsided: but in about two months the patient had a severe febrile attack accompanied with a sore throat; from this she soon recovered, but had shortly afterwards a copper-coloured eruption scattered over the body; and upon the disappearance of this, white blisters about the pudenda which gave her pain in walking. About a week afterwards her husband found a sore on the penis covered by a black scab, of about the size of a sixpence, with a base neither hard nor thick, but with the sur-

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rounding skin much inflamed. Another formed in the course of the lymphatics towards the groin: the inguinal glands enlarged, and one of them suppurated; and an eruption of a papulous erythema, ushered by a few febrile symptoms, followed in about three weeks. The sores were twice touched with lunar caustic, and, as well as the bubo, were afterwards washed with calomel in lime-water: they gradually healed. Both patients recovered, the wife with little assistance from mercury, having taken only a few compound calomel pills with small doses of nitric acid; the husband without mercury altogether, except that a dose of calomel was once administered with other aperient drugs as a purge.

Syphilodic virus more active and irritating than that of syphilis, but more effectually opposed by the natural powers of the constitution.

In all these cases, we meet with a virus that seems to be more active and irritating than that of genuine syphilis, but which, while it pursues, though with much irregularity, the same general path, runs through its course much quicker, and is more effectually coped with by the natural strength, or remedial instinct of the constitution. And hence, all that we are here called upon to do in the way of treatment is, to support the general vigour, and second the instinctive effort. This is best to be accomplished by tonics and gentle stimulants, and, where necessary, by sedatives. The mineral acids are the best means of supplying the first intention; camphor, the decoction of the woods, and the compound calomel pill, where small doses of mercury do not irritate, the second; and opium the the third: though to this last it will rarely be necessary to have recourse at all.

Hence mercury in full doses needless or mischievous.

The distinction between these affections and genuine syphilis is frequently difficult, but of importance: since, as a full use of mercury seldom seems to do good, and often does serious mischief in the former, such a plan has a chance of overwhelming the constitution with a second disorder instead of freeing it from a first.

Sibbens related to the present group of diseases.

To this family of maladies we are probably to refer the disease, which, for a century or two, has been known in Scotland by the name of SIBBENS OR SIVENS, literally rubula, or rasp-berry eruption: and which seems to be

Gen. VI. Spec. II. Lues syphilodes. Bastard pox. Its nature explained.

a variety of lues rendered hybrid by passing through a constitution already contaminated with genuine RUBULA or yaws. The local symptoms have a much nearer resemblance to those of bastard-pox than of genuine syphilis, but, in its constitutional progress, after the ordinary affection of the fauces, the disease has a tendency to throw forth, over the surface, an eruption of tubercles which speedily degenerate into fungous ulcers resembling yaws, rather than an eruption of copper-coloured spots: which tubercles sometimes show themselves also in the throat itself. The constitutional disease spends itself chiefly on the surface, and the bones are rarely affected. With these exceptions we may agree with Dr. Gilchrist *, and Mr. Hill of Dumfries †, that it has not a symptom which does not accompany the lues venerea (meaning syphilis) through all Europe; that both are equally infectious; both only communicated by sexual intercourse or other familiar contact; and both beneficially treated by mercury; which, they affirm, is the only remedy to be depended on.

First appearance at Dumfries.

Mr. Hill tells us that it was introduced into the vicinity of Dumfries, about the year 1772, "by some pocky soldiers, who, to prevent their debauching in town, were disposed through the neighbouring villages." Even upon his own showing, however, a much looser and blander exhibition of mercury than is sufficient for the cure of a confirmed syphilis, will effect this in sibbens; for he adds that "by the employment of a mild preparation of this metal he has cured numbers without confining them to their houses even in frosty or snowy weather."

Mild administration of mercury alone necessary.

It is probable, therefore, that sibbens might be eradicated by other means as well; but these gentlemen, notwithstanding the peculiarity of many of its symptoms, regarded it as a genuine syphilis; and, in consequence, did not direct their attention to any other mode of treatment.

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* Account of a very infectious Distemper, &c.

† Cases in Surgery; to which is added an Account of the Sibbens.

GENUS VII.

ELEPHANTIASIS.

Elephant-Skin.

SKIN THICK, LIVID, RUGOSE, TUBERCULATE; INSENSIBLE TO FEELING; EYES FIERCE AND STARING; PERSPIRATION HIGHLY OFFENSIVE.

Gen. VII. Origin of the generic term.

THE Greeks denominated this disease ELEPHAS or ELEPHANTIASIS, because the skin of persons affected with it resembles that of the elephant in thickness, ruggedness, insensibility, and dark hue. Thus applied, therefore, the term imports *elephant-skin*: in the same manner as the same national school denominated dandriff pityriasis, or *bran-skin*, from the skin, under this disease resembling branny scales; and another sort of scaly malady ichthyiasis, or *fish-skin*, from the resemblance of the skin, when thus affected, to the scales of fishes. There are, however, two diseases of a very different kind, which occur in the translations of the Greek and Arabic writers under the name of elephas, elephantia, or elephantiasis; that immediately before us, and the thick leg of Barbadoes and other hot climates: and, as the former of these has also, by many of the Arabian writers, been called lepra or leprosy, and especially black leprosy, though as distinct from genuine leprosy as it is from the thick-leg; and, as the common term lepra has been continued in the translations of such writers, and copied from them by writers of our own times, an almost impenetrable confusion has been thrown around the whole of these diseases; and they have, even by mo-

Two diseases possessing the same name:

which has also occasionally been applied to leprosy.

Whence great confusion among the writers.

Gen. VII. Elephantiasis. Elephant-skin.

dern writers been strangely huddled together, and contemplated as mere modifications of one and the same malady, or as having some other connexion which does not in reality exist.

The author applied to by Bateman to examine and settle the question.

My attention was particularly called to this subject about five or six years ago by an application from Dr. Bateman, who was then preparing his work for the press, on Cutaneous Diseases, to assist him in unravelling it from the thorny maze in which it was at that time enveloped, and, as the following letter from him, written in consequence of my acceding to his request, shows the real difficulty of the case, and is highly creditable to the activity of his mind, the reader will be obliged to me for introducing it:

Bateman's letter to the author.

"In order to give you the least trouble possible, in the research which you were good enough to promise to make for me this morning, I wish to state in a few words, the object of my inquiry. I believe the proper tubercular *elephantiasis* of the Greeks; was called *juzam*, or *aljuzam* by the old Arabians (*dsjuddam* and *madsjuddam* by the moderns, according to Niebuhr *).

"If so, do the other Arabian writers also designate the proper elephantiasis, by the same appellation?—For instance, is it used by Haly Abbas †?

"Again, what is the Arabic term applied to the THICK LEG (which most of the translators call *elephantiasis*, but which the translator of Haly Abbas, calls *elephas*, thus distinguishing it from *elephantia*?)—The *thick leg* is described by Haly Abbas ‡, by Avicen §, by Rhases ‖ and by Avinzoar ¶. The translators of the other works in these places, use the word *elephantia*.

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* See Avicen. Quart. III. or Lib. III. Fen. III. Tract. III. Cap. I.

† Theoricè, Lib. VIII. Cap. XV., and Practice Cap. IV. In which passages the translator has used the word Elephantia, and not Lepra, like the other translators.

‡ Theoricè, Lib. VIII. Cap. XVIII.

§ Lib. III. Fen. XXII. Tract. I. Cap. XVI or XVIII.

‖ Ad Almanzor. Lib. IX. Cap. XCIII.

¶ Lib. II. Cap. XXVI.

Gen. VII.
Elephantiasis.
Elephant-skin.

"Thus, the proper *elephantiasis* is called *elephantia* by (the translator of) Haly Abbas, and *lepra* by (the translators of) Avicen, Rhases, and Avinzoar.—And the *thick leg* is the *elephas* of the former, and the *elephantia* of the latter.—My chief inquiry is, whether the difference is only among the translators, or whether there is likewise a want of uniformity in the nomenclature of the original writers.

"*En passant*, I may observe, that some farther confusion has arisen among the translators, respecting another *leprous* disease, as it has been called, which the Arabians seem to have considered as having some affinity with the proper elephantiasis (juzam), but yet is materially different in its symptoms; and which they have denominated *baras*, or *barras*, and *albaras*, and which appears to accord accurately with the *leuce* of the Greeks, and the *vitiligo* (species 3.) of Celsus.—If the Hebrews did not apply the term (translated) *leprosy*, to several affections of the skin (such as the scaly lepra græcorum, the psoriatis of Dr. Willan, and the *leuce*, which I suspect they did): this leuce or baras would seem to be the *unclean* leprosy described in Leviticus, Cap. xiii. *

"If your knowledge of the oriental languages will enable you, together with your knowledge of these diseases, to disperse some of the thick mist in which the translators have enveloped them, I should be exceedingly glad to partake of a little of your light."

Substance of the author's reply.

The substance of the author's reply to this letter, already given in a note to the volume of Nosology, but which ought not to be omitted on the present occasion, was as follows:

Disease when first made known to the Greeks.

The Greeks became first acquainted with the elephantiasis from their casual intercourse with Egypt. To this

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* This is the opinion of two learned old Germans, Leon. Fuchs, in his Paradoxa Medicinæ, Lib. ii. Cap. xvi.; and Gregor. Horst. in his Epist. to Hopner, inserted in his Observationes Medicinales, Lib. viii. Obs. xviii.—And Sennert seems to be of the same opinion, Pract. Med. Lib. v. Part i. Cap. xl.

Gen. VII. Elephantiasis. Elephant-skin.

quarter Lucretius, adopting the common opinion, ascribes its origin;

> Est Elephas morbus, qui propter flumina Nili,
> Gignitur Ægypto in mediâ, neque præterea usquam.*
>
> High up the Nile, mid Egypt's central plains,
> Springs the Black Leprosy, and there alone.

Probably derived from Arabia:

Arabia, however, seems rather to have been the prolific source of this terrible scourge than Egypt: if we may judge from what seems highly probable, namely that this is the disease with which Job was afflicted in Idumea, a part of Arabia, as described in the sacred poem that bears his name under the appellation of בגע צרעת "the stroke of the scourge", and which affords, without question, the most ancient record in the world, composed in a mixt language of Arabic and Hebrew; and if we add to this the still more powerful argument that the Arabic name of the disease has extended itself all over the east, and is almost the only name by which it is known in Egypt, Persia, and India, in all which regions the disorder is about equally common. Yet the Arabic name is not *elephas* or *elephantiasis*, but juzam (جزام) literally "disjunction, amputation," vulgarly, indeed, and more generally pronounced and written judam (جدام) from جدّ a root which imports "erosion," "truncation," "excision;" evidently referring to the destructive character of the disease, and the spontaneous separation of the smaller members, as the fingers and toes when severe in its progress.

and thence propagated over all the east.

Named juzam by the Arabians.

Whence confounded with bucnemia, or the Barbadoes-leg.

The Arabians, however, have a malady, but of a very different kind, to which THEY also give the name of elephas, or *elephant-affection*, in their own language (دآءآ لفيل) dal fil, which is literally *morbus elephas*, and

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* De Rer. Nat. vi. 1112.

Gen. VII. Elephantiasis. Elephant-skin.

which they sometimes contract to (فيل) fil, or elephas alone. It is the "swelled, tumid, or Barbadoes leg," of modern writers, the bucnemia *tropica* of the present system. And, on this account, when learning, and especially medical learning, found an asylum, during the dark ages, at the splendid courts of Bagdat, Bassorah, and Cordova, and the best Greek writers were translated into Arabic, or the best Greek and Arabic into Latin, two different diseases were found to possess a like name: for the Greeks, notwithstanding that they had elephantiasis to signify juzam, could only translate dal fil by elephantiasis also. And hence arose that confusion of the two maladies which has continued to the present moment, notwithstanding the wide distinction between them, the one being a tubercular affection of the whole body, while the other is a scaly affection of only particular parts, and commonly of not more than a particular limb.

Whence leprosy confounded with the same.

The leprosy properly so called, the *leuce* (λεύκη) of the Greeks, and the baras or beras (برص) of the Arabians, was, by many of the Arabian physicians, and very generally among the people, supposed, in various cases, to terminate in juzam or elephantiasis, as though this also was nothing more than a different stage or degree of the same disease. And hence another error and perplexity in medical study. Alsahavarius thus unites them, and they are jumbled together or explained alike in nearly all the oriental dictionaries; in which beras or leprosy, and juzam or elephant-skin, are, almost without an exception, regarded as convertible terms. This oriental confusion of two very different diseases was readily copied by the Latin translators, till at length, both in the east and west, beras or lepriasis, though literally scale-skin, became a sort of family name for almost every foul disfigurement of the skin, whether tubercular, or scaly, cutaneous or constitutional. And, on this account, elephantiasis and leprosy, and several other diseases even in the nosology of Linnéus, are included under the term lepra; all which the disciples of this school, extending a principle very widely adopted by them, ascribe to ani-

The confusion continued by the Latin translators of the Greeks.

GEN. VII. Elephantiasis. Elephant-skin.

malcules drunk in with the common beverage of water, especially the gordius *marinus*.

The author ought not to conceal Dr. Bateman's acknowledgment of this communication, and his assent to its explanation contained in the following opening of a letter received a few days afterwards:

Bateman's acknowledgment to the author.

"I thank you sincerely for your ready and interesting communication, which satisfactorily explains the point, respecting which I was the least able to obtain satisfaction from the translators, viz. that the Arabians had applied the term *elephant*, (*elephas*, according to the able translator of Haly Abbas,) or fil, as you state, to the swelled leg. This is some apology for the appropriation of the Greek term elephantiasis, (though it actually denoted a different disease) to the Arabian thick leg; but the appropriation of *lepra*, which is never mentioned by the Greeks but as a "superficial, rough, and scaly affection," to the tubercular juzam, has unfortunately misled and confused us for a thousand years."

Elephantiasis called also leontiasis, and why.

Dr. Bateman adds, that he apprehends the term elephantiasis had also a reference to the *magnitude* and DURATION of the disease, independently of the appearance of the skin. And it is very probable, as the malady was likewise sometimes denominated *leontiasis*, that the formidable and frightful aspect of the patient labouring under it, may have been hereby compared to the general exterior of both the elephant and the lion: for while Aretæus tells us, in describing it, that "it is disgusting to the sight, and in all respects terrible like the elephant," Avicenna affirms, "it renders the countenance terrible to look at, and somewhat of the form of the lion's visage."

Species of elephantiasis.

Besides the elephantiasis of the Arabians we have a disease of the same kind, or which seems to be of the same kind, common to some parts of Italy, and another common to some parts of Spain; both which seem, indeed, to have issued from the Arabian stock. And hence elephantiasis, as a genus, offers us the three following species:

1. ELEPHANTIASIS ARABICA.	ARABIAN ELEPHANTIASIS.
2. ——————— TALICA.	ITALIAN ELEPHANTIASIS.
3. ——————— ASTURIENSIS.	ASTURIAN ELEPHANTIASIS.

SPECIES I.

ELEPHANTIASIS ARABICA.

Arabian Elephantiasis. Black Leprosy.

TUBERCLES CHIEFLY ON THE FACE AND JOINTS; FALL OF THE HAIR EXCEPT FROM THE SCALP: VOICE HOARSE AND NASAL: CONTAGIOUS AND HEREDITARY.

Gen. VII. Spec. I. This form the oldest and most inveterate,

THIS species, which is the oldest of the three, is also the most inveterate: for we do not know that the Italian species is contagious, though, like the Arabian, it appears to be hereditary: while the Spanish is, perhaps, neither contagious nor hereditary.

In a few regions seems not to be contagious though hereditary;

In some parts of the world, indeed, even the present species is said not to be contagious, though all the writers concur in its being hereditary in every quarter. Thus Dr. Schilling, while he admits the latter effect, asserts that it is not contagious in Surinam: and Dr. T. Heberden asserts the same of this disease in Madeira. "I not only," says he, "am a daily witness of communication between lepers and other people without the least ill consequence, but know several instances where a leprous husband (afflicted with the Arabian leprosy or elephantiasis) married to a sound wife, has cohabited with her for a long series of years, and had several children by her, without her having contracted the least symptom of the disorder, although the children have inherited it;

GEN. VII. SPEC. I. Elephantiasis Arabica. Arabian elephantiasis. Black leprosy.

and vice versâ between a leprous wife and sound husband *."

but generally possesses both qualities.

That the disease, however, is contagious as well as hereditary in India and Arabia, we have the concurrent testimony of all the medical writers of both countries, native as well as foreign; so that there can be no doubt upon the subject. And hence, the Madeira and Surinam juzam should seem to be a variety of the oriental, influenced by peculiarity of climate or some other incidental cause.

General description.

This severe malady, wherever it shows itself is sometimes slow in its growth, and continues many years without deranging the functions of the patient: yet great deformity is advancing upon his external make. The alæ of the nose become swelled and scabrous, and the nostrils are preternaturally dilated; the lips are tumid; the external ears, particularly the lobes, are enlarged and thickened, and beset with tubercles. The skin of the forehead and cheeks grows dense and hard, and forms large and prominent rugæ, especially over the eyes; the hair generally, except on the head, falls off; the voice becomes hoarse and obscure; the external sensibility is obtunded or totally abolished, so that pinching or puncturing gives no pain. The tubercles at length begin to crack, and ulcerate; ulcerations appear in the throat and nostrils; the breath is intolerably offensive; the palate destroyed; the nose falls off; the fingers and toes, from the increased depth and virulence of the ulcerations become gangrenous, and separate, and drop off one after another. The mental powers suffer less than in the two other species: the dreams, however, are greatly disturbed, the manners, for the most part, morose and melancholy; and sometimes there is an inextinguishable desire of sexual intercourse.

Prevalent in Norway and Iceland.

This disease is also known in the high northern latitudes of Norway and Iceland. In the last place, it is peculiarly prevalent, produced, as Dr. Henderson justly

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* Medical Transactions, Vol. I. p. 35.

Gen. VII. Spec. I. Elephantiasis Arabica. Arabian elephantiasis. Black leprosy.

observes, by the rancidity of the food usually fed on, wet woollen cloths, an insalubrious air, and want of cleanliness. It is called "Likthra," or "Putrefaction:" and a hospital is established for it in each of the four quarters of the island. It seems to be here both infectious and hereditary. "In its primary stage," says Dr. Henderson, "its symptoms are inconsiderable. A small reddish spot, scarcely larger than the point of a needle, breaks out at first about the forehead, nose, corner of the eyes and lips: and in proportion as it increases other pustules make their appearance on the breast, arms, arm-pits, which generally dry up in one place and break out in another without pain, till the disease has considerably advanced, when they cover almost the whole body, give the skin a scabrous appearance, stiffen it sometimes in shining scales which fall off like dust, sometimes in malignant tumours and swellings. The patient, in the mean time, labours under lassitude of body, anæsthesia and lowness of spirits." The miserable progress is nearly a transcript of the description just given. The patient is so worn out with fatigue and melancholy, as to be often tempted to make away with himself. He surrenders one part of the body after another to the insatiable malady; "till at length," says Dr. Henderson, "death, the long-wished-for deliverer, comes suddenly and puts an end to his misery *."

Its appearance in these regions.

Medical treatment.

The cure is extremely difficult; but a course of warm diaphoretics succeeded by tonics and especially the metallic tonics, seems to have constituted the most successful plan. Hence a free use of sarsaparilla, mezereon, or guaiacum, has been found beneficial; and mercurial alteratives still more so; though salivation appears to have been uniformly mischievous. Even the lobelia has had its advocates, and upon the ground of its proving salutary in syphilis it has probably also been sometimes serviceable in elephantiasis. Dr. Schilling endeavours

Diaphoretics succeeded by tonics.

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* Iceland, or the Journal of a Residence in that Island, Vol. I. p. 295. 8vo. Edin. 1818.

Gen. VII. Spec. I. Elephantiasis Arabica. Arabian elephantiasis. Black leprosy. Treatment.

to increase the determination to the skin, by advising a use of the warm-bath and gentle exercise, and embrocating the body with spirit of wine or rum or exposing it to a vapour-bath of mastic, olibanum, benzoin, or lavender.

In India the metallic tonics, and especially arsenic.

In India the cabirajas, or native physicians, after bleeding and purging, immediately apply to the metallic tonics, and particularly to the white oxyde of arsenic, which they give as in the case of syphilis, and indeed of various other impurities of the blood, in the form of pills; mixing the arsenic, which, in Hindustanee, is sané hya, and in Arabic, shucc, with six times its weight of black pepper into a mass with a little water; so that each pill may contain about two-thirds of a grain of arsenic and four grains of pepper, which is to be taken twice a-day. And this medicine is regarded almost as a specific antidote. It has no doubt proved often successful: and I have known various cases in our own country in which it has been found equally so in the form of the arsenical solution.

Asclepias gigantea. Giant swallow-wort.

In this quarter of the globe, however, Mr. Playfair has of late years revived the use of one of the species of asclepias or swallow-wort. In Europe, the a. *Vincetoxicum* was formerly in high favour as an alterant and alexipharmio, and was often denominated contrayerva Germanorum: but its virtues were not sufficient to support its character. The swallow-wort employed by Mr. Playfair is the a. *gigantea*, a native of the east, and appears, from an account lately published by Mr. Robinson *, to be posseed of more active and possibly more salutary, qualities. It is the *nudar* of Hindustan.

Bark in Madeira with external stimulants.

The tonic found most useful by Dr. T. Heberden in Madeira was bark, which however, has not proved of equal success in other places or the hands of other practitioners; but he employed it in connexion with that course of external stimulants which has been found generally serviceable, and probably not a little contributed to its

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* Medico-chirurg. Trans. Vol. x.

GEN. VII. SPEC. I. Elephantiasis Arabica. Their success as related by Heberden.

wonderful efficacy in the various cases he refers to, and particularly one of a confirmed and chronic attack. "I have," says he, "in this island experienced the use of the bark in four or five leprous patients with success. One had a confirmed elephantiasis; the others were only incipient; having no other symptoms than florid or livid tubercles in the face and in the limbs. The confirmed elephantiasis was attended with livid and scirrhous tubercles which had overspread the face and limbs; the whole body was emaciated; the eye-brows inflated; the hair of the eye-brows fallen off entirely; the bones of the nose depressed; the alæ nasi tumefied, as likewise the lobes of the ears; with a suffusion on both eyes which had almost deprived the patient of his sight. There was a want of sensation in the extremities; and a loss of motion in the fingers and toes."

Arabian elephantiasis. Black leprosy. Treatment.

For upwards of seven years Dr. Heberden had used every medicine he could think of to relieve this patient, but in vain. Antimonials and mercurials of almost every kind; neutral salts, the warm diaphoretics, as sassafras, and sarsaparilla, warm baths, and medicated baths, were alike fruitless. On May 2, 1758, he made his patient commence an electuary of powder of bark, with a third part bark of sassafras root, inspissated with syrup. And of this the quantity of a large nutmeg was ordered to be taken *twice* a-day. The patient at the same time had his arms and legs bathed with an embrocation consisting of an ounce of lixivium of tartar and two drachms of spirit of sal ammoniac, intermixed with half a pint of proof spirit. By the latter end of May, the tubercles were considerably softened: by June 28, they were dispersed; a red scurfy efflorescence alone remaining behind, which in ten days lost its florid hue, and peeled off, leaving the cuticle sound and clean. "The patient," says he, "gradually recovered the sensation in his legs and arms, and the use of his toes and fingers; the hair has grown again on his eye-brows; and the only remainder of the distemper which I can perceive, is that the nose continues somewhat flatter from the depression of the bones. The suffusion is quite cured, and the patient is εὔσαρκος καὶ εὔχροος [*], of a healthy skin and colour.

SPECIES II.

ELEPHANTIASIS ITALICA.

Italian Elephantiasis.

TUBERCLES CHIEFLY ON THE BODY AND LIMBS, SOMETIMES DESQUAMMATING: GREAT TENSION OF THE SKIN: VERTIGO: BURNING, LANCINATING PAIN IN THE HEAD: MELANCHOLY, AT FIRST REMITTING, AFTERWARDS FIXT, TERMINATING IN ALIENATION OF MIND: HEREDITARY.

Gen. VII. Spec. II. Called pellagra in Italy. General history.

For a knowledge of this species we are almost exclusively indebted to the Italian physicians who have generally given it the name of pellagra or pelagra. The first writer upon the subject appears to have been Francis Frapolli, a physician of Milan, whose work, "In morbum vulgo Pelagram dictum," was published at Milan in 1771, and who expresses himself doubtful whether the disease, though not antecedently described, is not referred to occasionally by earlier writers, although he does not think that the pilarella, as the syphilis was called when it proved depilatory to the chin and eye-brows, was the disease in question, notwithstanding this seems to have been an extensive opinion at the time. The next tract of any note upon the subject, was published at Venice in 1784, by G. M. d'Oleggio, under the title of "A Theoretical and Practical Treatise on the Diseases of Vernal Inoculation, commonly called Pellagra [†]." But the best

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[*] Med. Trans. ut suprà.

[†] Tratto teoretico-practico delle malattie dell insolato di primavera volgarimente dette della Pellagra.

Gen. VII. Spec. II. Elephantiasis Italica. Italian elephantiasis.

account we have received of this complaint is from the pen of Dr. Jansen of Leyden which appeared in 1788, and asserts that it is endemic in the Milanese territory *. It is, in truth, common to both the Milanese and Venetian territories as well as to other districts widely differing in soil and temperature: and can scarcely, therefore, be referred to either of these sources. It is commonly ascribed, as we have observed above, to the heat of the sun's rays after the chill of winter, and is hence called *mal del sole*, which we have just seen, was the view taken of it by d'Oleggio; while by Odoardo it is attributed to a scrophulous habit †, and by Videmari and others, who have too much limited themselves to the nature of the eruption, to an impetiginous impurity ‡. But none of these explanations seem to rest on any very solid foundation; and, upon the whole, we have more reason for regarding it, as produced by the debilitating causes of hot, confined air, want of cleanliness and bad diet, operating in many cases upon a diathesis hereditarily tainted. It is found chiefly among the Milanese and Venetian peasantry, whose hovels are full of wretchedness, and rarely makes its appearance till after the age of puberty.

Description.

The first symptoms of the disease are general languor, listlessness, gloom, feebleness, and stupor in the legs, and hence unsteady walking; vertigo and confusion of ideas. Domeier, another writer upon the subject, extends the stupor of the legs to the entire frame, and asserts that anæsthesia is a characteristic symptom of this species §. But this assertion is not confirmed by the history of other pathologists: though the languor and inertness is often very great as well as universal.

First stage.

These symptoms usually take place in the spring; and,

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* De Pelagra morbo in Mediolanensi Ducatu endemio.

† D'una spezia particolare di Scorbuto. Venet. 1776.

‡ Da quadam Impetiginis specie, morbo apud nos in rusticis nunc frequentiori, vulgo Pellagra nuncupata, 8vo. 1790.

§ Baldinger, Journ. xxvi. p. 9.

GEN. VII. SPEC. II. Elephantiasis Italica. Italian elephantiasis.

as the summer approaches, a sense of tension, burning, and itching, is felt in every external organ except the head, followed by an inflation of the epidermis, and tubercles of a shining red colour. After some days, the tubercles desquammate, and the skin appears at first red, but soon recovers its natural colour. As the summer, however, advances, every symptom commonly subsides, and the strength returns with the winter. But if the symptoms do not thus subside, they become considerably exasperated and form a second stage of the disease: in which the itching grows more pungent; the heat more fiery; the skin harder, cracked, and chapped; the debility is greater; the mental functions are disturbed generally; the appetite is irregular; the sleep broken, with acute pain in the head and spine, soon followed by delirium. The cutaneous affection now diminishes; but the nervous symptoms are greatly augmented. The vertigo increases; the patient is sad and loves solitude, and melancholy delirium alternates with furious mania. The tædium vitæ is insupportable, and self-murder is a frequent consequence. Strambio remarks that those who labour under this disease have the greatest tendency to drown themselves, "as by an hallucination," says he, "opposite to that of hydrophobia *." Coercion is at last necessary; and a diarrhœa, atrophy, or dropsy closes the dreadful scene, if the patient do not sink earlier from corporeal and mental exhaustion.

Second stage.

Termination.

Medical treatment.

The treatment need not essentially differ from that of the preceding species. Pure air, habitual cleanliness, warm bathing, and a nutritious diet, with such tonics, whether vegetable or mineral, as best agree with the constitution, have proved most successful, where the disease has not advanced beyond the reach of recovery.

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* De Pellagra, Observationes. Ann. I. II. III. Mediol. 1785.

SPECIES III.

ELEPHANTIASIS ASTURIENSIS.

Asturian Elephantiasis.

TUBERCLES CHIEFLY ON THE HANDS AND FEET; CRUSTACEOUS, DESQUAMMATING; CONTINUAL TREMOR OF THE HEAD AND UPPER PART OF THE TRUNK; BALDNESS OF THE SCALP, AS WELL AS OF OTHER PARTS: GLOOM AND TERROR OF MIND.

Gen. VII. Spec. III. How distinguished from both the preceding species.

THIS species agrees in many of its symptoms with the Italic, and it is only worth while to notice the points in which they differ. Upon the whole, we may observe, that all the species coincide in being founded on an exhausted constitution, in the general character of the tubercles and in their fatal termination by dropsy, atrophy, or some other asthenic disease. The Arabic species attacks the face, the roots of the hair and the palate-bones before the remaining parts on which it preys are diseased, and the affection of the skin increases with the increase of the other symptoms. In the Italian species, the affection of the skin diminishes as the nervous and mental commotion augments. The pellagra also is distinguished by thick urine, double vision, and a peculiar mouldy smell of the sweat. In the Asturian species, the crustaceous tubercles are peculiarly painful; highly fetid, deeper furrowed with cracks, and more disgusting to the sight; attacking the head as well as other parts indiscriminately, and destroying the roots of the hair. The mind is less affected than in the last, and with melancholy and terror rather than with raving delirium.

Description.

Forms the Asturian leprosy of Thiery and others;

This species constitutes the Asturian leprosy of Thiery, Vandermonde, and Sauvages; but genuine leprosy is

Gen. VII. Spec. III. Elephantiasis asturiensis. Asturian elephantiasis. and the Mal de la Rosa of the Spanish writers.

not a constitutional complaint; and the present is its proper place, As the tubercles desquammate, the skin appears of a glossy leprous red, and the disease is hence called by the Spaniards Mal de la Rosa.

The causes are extreme poverty and its attendants, filth, bad diet, and crowded unventilated rooms in the deep and swampy vallies of the country, almost impervious to the rays of the sun: and hence the medical treatment and general regimen recommended under the preceding species will afford the fairest promise of success here.

GENUS VIII.

CATACAUSIS.

General combustibility of the body.

Gen. VIII.

The peculiar state of the constitution which lays a foundation for the present genus of morbid affections is of a very singular and mysterious kind; and the only medical work that has referred to it in our own country, antecedently to the author's own system of Nosology is Dr. Young's Medical Literature, in which it is noticed under the Greek name here applied to it, derived from κατακαίρω "exuro." One only species has hitherto been discovered as belonging to it; which, from the peculiar habit under which it occurs, may be distinguished by the name of

Rarely noticed by medical writers hitherto.

Only one known species.

1. CATACAUSIS EBRIOSA. INEBRIATE CATACAUSIS.

SPECIES I.

CATACAUSIS EBRIOSA.

Inebriate Catacausis.

THE CONSTITUTION INFLAMMABLE IN CONSEQUENCE OF A LONG AND IMMODERATE USE OF SPIRITUOUS LIQUORS: THE COMBUSTION EASILY EXCITED OR SPONTANEOUS.

Gen. VIII. Spec. I.

In this wonderful malady, the art of medicine can be rarely of any avail; since the mischief is, in almost all instances, only to be discovered after a cessation of life, and the destruction of some part of the body by an actual

The art of medicine seldom available.

Gen. VIII.
Spec. I.
Catacausis ebriosa.
Inebriate catacausis.
Disease not credible if not well authenticated.

General description.

flame, or fire, in many instances spontaneously issuing from its surface. There may be some difficulty in giving credit to so marvellous a diathesis; yet examples of its existence and of its leading to a migratory and fatal combustion are so numerous and so well authenticated, and press upon us from so many different countries and eras, that it would be absurd to withhold our assent. In almost every instance, the combustion seems to have taken place in females, advanced in life, and immoderately addicted to spirituous liquors*. In some cases the heat that has set them on fire appears to have originated in themselves; in others to have been communicated by a stove, or a candle: or a stroke of lightning†; but in no case has the fire or flame hereby excited in the body been so powerful as essentially to injure the most combustible substances immediately adjoining it, as linen or woollen furniture. The body, in several instances, has been found actually burning, sometimes with an open flame flickering over it; and sometimes with a smothered heat or fire without any open flame whatever: while the application of water has occasionally seemed rather to quicken than impede the igneous progress.

This is the more extraordinary, as the human body, in every other state we are acquainted with, whether of health or disease, is scarcely at all combustible of itself, and cannot be reduced to ashes without the assistance of a very large pile of fagots or other fuel, as universal experience in this very ancient mode of sepulture, and the history of martyrs, who have been condemned to the flames, abundantly testify.

Usually occurs at night.
How discovered:
The affected person found dead.

The event has usually taken place at night when the sufferer has been alone; and has commonly been discovered by the fetid, penetrating scent of sooty films which have spread to a considerable distance; the unhappy subject has, in every instance, been found dead, and more or less completely burnt up; the burnt parts being reduced to an oily, crumbly, sooty, and extremely offensive matter. "I confess," says M. Pierre-Aime-Lair*, that these accounts at first appeared to me to be worthy of very little credit, but they are presented to the public as true by men whose veracity is unquestionable. Bianchini, Maffei, Rolli, Le Cat, Vicq d'Azyr, and other men distinguished by their learning, have offered certain testimony of the facts. Besides it is not more surprising to meet with such incineration than a discharge of saccherine urine, or an appearance of the bones softened to a state of jelly."

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* Bartholin, Act. Hafn. I. Obs. 118.

† Fouquet, Journ. de Med. Tom. LXVIII.

GEN. VIII.
SPEC. I.
Catacausis ebriosa.
Inebriate catacausis.

Authorities appealed to.

Those who are desirous of pursuing this curious subject farther, and of entertaining themselves with the very extraordinary histories connected with it, as also of examining the various hypotheses by which they have been accounted for, may consult the Philosophical Transactions, Vols. XLIII and XLIV, the first of which contains numerous examples; as also a variety of foreign journals of established reputation, referred to, and cited in the running commentary to the author's volume of Nosology. We have not space to enter into these separate cases, though many of them are highly interesting; but in a general course of medical study, the phænomenon ought not to be passed by: it forms one of the most curious links in the long chain of morbid affections, and equally demands our attention as pathologists and physiologists.

Subject ought not to be omitted in a course of medical study.

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* Journ. de Physique. Ann. VIII.

GENUS IX.

PORPHYRA.

Scurvy.

LIVID SPOTS ON THE SKIN FROM EXTRAVASATED BLOOD; LANGUOR AND LOSS OF MUSCULAR STRENGTH; PAINS IN THE LIMBS.

GEN. IX. Signification of the generic term; and reasons for its adoption.

PORPHYRA is in Greek what purpura is in Latin, literally "the purple or livid disease." The latter has been very generally made use of; but the former is here preferred on two accounts. First, that of technological simplicity,—the names of the genera under the present system being uniformly of Greek origin. And secondly, because the Latin purpura has been used in senses so numerous, so vague, and unconnected, that at this moment it conveys no definite idea whatever. "The term purpura," observes Dr. Bateman, most correctly, "has been employed by different writers in so many acceptations that some ambiguity would perhaps have been avoided by discarding it altogether; for some authors have used it as an appellation for measles, others for scarlet-fever, for miliaria, strophulus, lichen, nettle-rash, and the petecchiæ of malignant fevers; while formerly it was applied to petecchial spots only by Riverius, Diemerbroeck, Sauvages, Casson, and some others*."

The Latin term purpura used indefinitely.

Ordinary term scorbutus. Objections to its use.

The usual synonym for purpura is *scorbutus*; but to this there are still stronger objections. For as a term it is neither Greek nor Latin, nor any language whatever;

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* Synops. of Diseases, p. 102.

Gen. IX. Porphyra. Scurvy.

but an intolerable barbarism, derived, as is commonly supposed, from the German compound *schar-bocke* literally "aggregate-pox," "cluster-pox;" but more likely from *scharf-pocke*, "violent, or vehement pox;" or *schorf-pocke*, "scurf, or scurvy-pox," to which the inventor has endeavoured to give a sort of Latin termination. Independently of which scorbutus, as employed at present, only indicates a particular species of scurvy; and could not therefore, without imprecision, be used in a generic signification.

The definition offered nearly parallel with the purpura of Willan.

The sense here expressed by porphyra, runs, as nearly as possible, parallel with the range assigned by Dr. Willan to purpura. "With Riverius and some other authors," says he, "I propose to express by the term *purpura* an efflorescence consisting of some distinct, purple specks and patches, attended with general debility, but not always with fever." And again "cases of the purpura seem to have been studiously multiplied in periodical publications, and in medical or surgical miscellanies. I consider it under all the forms described as pertaining to the scurvy, though it is *not always* attended with sponginess of the gums, and a discharge of blood from them according to the definition of scorbutus in nosology*."

Its range more fully stated.

Porphyra, in its present signification, is intended to include every description of petecchial eruption, and spontaneous ecchymosis not dependent on fever as their cause, in which case these affections are only symptomatic.

The genus thus explained will associate under its banners the three following species:

1. PORPHYRA SIMPLEX. PETECCHIAL-SCURVY.
2. ——— HÆMORRHAGICA. LAND-SCURVY.
3. ——— NAUTICA. SEA-SCURVY.

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* On Cutaneous Diseases, Ord. III. p. 453.

SPECIES I.

PORPHYRA SIMPLEX.

Petecchial Scurvy.

SPOTS NUMEROUS, BUT SMALL AND FLEA-BITE-SHAPED; CHIEFLY IN THE BREAST, ARMS AND LEGS; PALENESS OF VISAGE.

Gen. IX. Spec. I. Formerly supposed to originate alone from putrid fevers, till other causes were shown by Riverius.

In all cases debility and relaxation the predisposing cause.

PULICOSE or petecchial spots were at one time supposed to be, in every instance, the result of debilitating and putrid fevers. Riverius is, perhaps, the earliest author who distinguishes between simple petecchiæ, and petecchial fevers. Vascular debility or relaxation is, however, the predisposing cause in both cases. They necessarily, indeed, accompany each other, and, wherever they exist in any considerable degree, they lay a foundation for those minute extravasations which constitute the present species; and which may take place either from occasional ruptures of the weakened coats of the minute subcutaneous bood-vessels, in consequence of their being incapable of resisting the impetus of the blood that flows through them; or from the mouths of many of them, which should give forth only the finer and limpid particles of the blood, yielding and allowing an exit to the red globules.

Usual remote causes.

Both these may follow upon atonic fevers; but the usual remote causes in the species before us, are severe labour with innutritious or spare diet, and especially with impure air; an impoverished state of the system from a sudden and profuse loss blood; a sedentary and inactive life or some chronic and exhausting disease by

Gen. IX. Spec. I. Porphyra simplex. Petecchial scurvy.

which the general strength has been broken down. To these Riverius adds suppression of the catamenia, and a certain mild ebulliency of the blood in boyhood—levem quamdam sanguinis ebullitionem; a phrase apparently importing an excess of sanguineous temperament: from both which he tells us he has frequently seen the disorder originate. And he is confirmed in the last by a case hinted at by Dr. Perceval in his manuscript comment on the author's Nosology, in which he observes under the present species, that "in a young lady of a full habit, and florid complexion, if the skin of the face or neck were touched even slightly blood oozed from the pores."

Remote cause sometimes unknown. Illustrated.

The disease seems also to be produced at times by some unknown cause; of which Cullen has given a striking instance in his Materia Medica. "The patient," says he, "was a woman who had lived very constantly upon vegetable aliment and had not been exposed, so far as could be judged, to any febrile or putrid contagion; and yet, without any feeling of any other disorder, was affected with numerous petecchiæ over the whole surface of her body. After these had continued for some days without any symptoms of fever, she was affected with swelled and bleeding gums, with fetid breath and much thirst; and in the course of a week or two more almost every symptom of a putrid fever came on, and in a few days proved fatal."

The above case probably referable to debility.

It is possible in this case that the brain may have lost its energy, and the blood become impoverished by too low a diet, though the history is not given with sufficient fulness to speak with much decision upon this point. The fever was evidently produced by the irritability of weakness, and necessarily ran into a typhous type from the same cause.

The disease, as it commonly shows itself, under two forms, which may thus be described as varieties,

α Pulicosa. Simple Pulicose Scurvy.	Exhibiting from the first a pulicose, or flea-bite appearance.

Gen. IX. Spec. I. Porphyra. simplex. Petecchial scurvy.

ϐ Urticaria. Nettle-wheal Scurvy.	The flea-bite spots preceded by reddish, rounded and nettle-sting wheals, but without the nettle-sting itching; fugacious and migratory.

α P. Pulicosa. Simple pulicose scurvy.

The FIRST VARIETY is not only produced by debility, but attended with languor and pains in the limbs, and chiefly affects women and children in consequence of their greater laxity of fibre.

ϐ P. Urticaria. Nettle-wheal scurvy.

The SECOND VARIETY may possibly be accompanied with some kind of acrimony in the blood, and something more of a constitutional affection; for there is usually a loss of appetite, and an edematous swelling of the hands and ankles; while the spots are brighter at night and darker in the day; evidently proving great irritability in the capillaries, and especially towards the period of the natural evening paroxysm of fever, and great atony in the absorbents. This variety often continues for five or six weeks.

Medical treatment.

Better diet, freedom from hard labour, pure air, sea-bathing, the mineral acids, and other tonic medicines, afford a pretty certain process of cure.

SPECIES II.

PORPHYRA HÆMORRHAGICA.

Land-Scurvy.

SPOTS CIRCULAR, OF DIFFERENT SIZES; OFTEN IN STRIPES OR PATCHES, IRREGULARLY SCATTERED OVER THE THIGHS, ARMS AND TRUNK; OCCASIONAL HEMORRHAGE FROM THE MOUTH, NOSTRILS OR VISCERA; GREAT DEBILITY AND DEPRESSION OF SPIRITS.

Gen. IX. Spec. II.

This species is sometimes marked by febrile paroxysms, with variable intervals, but usually occurring in the evening. It has no regular or stated termination. Dr. Willan has found it run on in different cases, from fourteen days to a twelvemonth, and upwards. It is met with at every period of life, but chiefly affects persons of a weak and delicate habit; often children, principally women.

General description.

Precursive symptoms.

The precursive symptoms are lassitude, faintness, and pains in the limbs, so that business or even company, is found fatiguing. After this there are often shiverings, nausea and vomiting. The purple eruption appears first on the legs, and afterwards, at irregular periods, on the thighs, arms, and trunk of the body; the hands and face generally remaining free. The spots, however, are frequent on the interior of the mouth, and particulary the tonsils, gums and lips: where they are sometimes raised or papulated. It is here the first hemorrhage commonly issues, though, as the disease advances, blood flows also from the nostrils, lungs, stomach, intestines, and uterus. The hemorrhage is often profuse and cannot easily be restrained, and is accompanied with anasarcous swell-

Diagnostics.

Gen. IX. Spec. II. Porphyra hæmorrhagica. Land-scurvy. Remote causes.

ings. It sometimes precedes the purple spots, but more commonly takes place a few days afterwards.

The most usual remote causes of the present, as of the preceding species, are poor diet, impure air, anxiety of mind, and a sedentary mode of life: and if women under these circumstances, and affected with this complaint, are wet nurses, their infants participate in the disease from the milk not being sufficiently nutritious. It is also produced by habitual gluttony, and particularly by an habitual and immoderate use of spirits; which have the strongest tendency to render torpid the collatitious organs of digestion, and especially the liver; whence congestions and other obstructions, and whence, too, the larger and more dangerous hemorrages that occur in this species.

Medical treatment must differ according to the difference of cause.

As these causes are widely different in their mode of action though they concur in producing the same effects, the treatment must vary in like manner.

When a tonic plan, advisable from the first.

Where the source of the disease is poverty with its miserable train of attendants, poor diet, impure air, hard labour, grief of mind, the mode of cure recommended for the preceding species will be found equally serviceable here: but the tonic power may be carried to a higher range; the bark should be freely administered, and wine be liberally allowed. The worst symptom is the tendency to hemorrhage, which is sometimes profuse and restrained with great difficulty, and has been known to prove fatal. Occasionally, however, an accidental hemorrhage has had a contrary effect, and carried the complaint away; and hence Dr. Parry of Bath, has found venesection serviceable. Yet in these cases, we may reasonably suspect the second cause we have noticed, namely, some visceral congestion, and especially that of the liver, to lie at the foundation; and dissections have proved this to be no uncommon cause of the disorder. The symptoms of visceral obstruction indeed, are often sufficiently clear; and where these occur, antecedently to the tonic plan, we must freely and repeat-

When to be preceded by evacuants

Gen. IX. Spec. II. Porphyra hæmorrhagica. Land scurvy.

edly evacuate the bowels; and may advantageously have recourse to the lancet.

Sometimes cured by a metastasis.

Strikingly illustrated.

In some cases of great laxity of fibre, the extremities of the larger capillary arteries seem to sympathize with the state of the liver or other visceral organs, and to relieve the oppression by a metastasis. Willan has related a singular case of this disease which it is difficult to account for otherwise. A lady aged thirty-six, of the sanguine temperament, after experiencing, for several days, a painful inflation of the stomach, was seized on the 17th of June, 1792, with violent vomiting, which continued almost incessantly through the 18th and 19th, and was accompanied with excruciating pains in the bowels. The fluid discharged was clear, strongly tinged with green bile, and amounted to three or four quarts a-day. The vomiting abated about the 20th, and she had loose stools of a green colour intermixed with black, coagulated blood. This kind of discharge continued till the 25th, producing great languor and faintness, thirst and restlessness, with a cool skin and remarkably slow pulse. On the evening of the 25th, her extremities became suddenly cold, the pulse scarcely discernible, a cold sweat trickled from every part of the body, her voice was indistinct, and her breathing laborious. From this alarming state she recovered in the course of the night; and on the following day a rash appeared over the whole body in small and circular patches, confluent on the neck, shoulders, and nates, but in other places distinct. The eruption diminished in two or three days, and assumed a livid colour; and the discharge of blood ceased from this time. She improved generally, but for two months suffered greatly from languor and debility: the extremities were, for a long time, anasarcous, and two of the spots became gangrenous.

Land-scurvy more frequent and severe formerly than at present.

The account and causes now given of this species are such as we usually meet with in the present day. But if we look back into the history of this disease as far as the seventeenth century, and especially to the state of this metropolis, we shall find hemorrhagic or land-scurvy

Gen. IX. Spec. II. Porphyra hæmorrhagica. Land scurvy. Explanation of this assertion.

making a much nearer approach to sea-scurvy than in our own time; not only in its symptoms, but from the peculiar causes that seem to have given rise to it, and which are now, for the most part, removed. The population within the walls of the old city, was, at that period, far greater than at present, since the streets have been very extensively widened, and many of them entirely pulled down; and fashion, which does not always operate so usefully, has led all who are capable of following its steps, into the more salubrious air of the neighbouring villages. Independently of this, the supply of fresh vegetable food for man, and of winter fodder for cattle, was, at the period before us, so scanty, as to render it necessary to salt a great quantity of the cattle that was killed in the summer season for winter's use. To which we have to add a far greater degree of dampness and uncleanness, not only in the public streets but also in private houses.

Unventilated atmosphere.

Want of fresh vegetable food.

Hence land scurvy of former times related to sea scurvy.

All these are also causes of sea-scurvy; and we find from the description of Willis and others, that they produced conjointly very similar effects; and that the mortality hence ensuing was very great. The monthly deaths, according to the bills of mortality, occasioned by what is there called scurvy, were seldom less than fifty, and frequently as high as ninety. In the period of the plague, they are only set down at a hundred and five from this last cause for the year. It was not, indeed, till the beginning of the sixteenth century that any great progress was made in the art of kitchen-gardening in our own country. At this last period so low was the knowledge of this art that Queen Catharine of Arragon could not procure a salad till a gardener was sent for from the Netherlands to raise it: nor were the most common articles of the kitchen-garden, such as cabbages, cultivated till this reign *. And such was the prejudice at one time entertained against pit-coal, from its being supposed to load

Kitchen gardening little cultivated till the sixteenth century.

Singular proof of this.

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* Anderson's History of Commerce.—Sir G. Blane's article, Med.-Chir. Trans. IV. p. 96.

Gen. IX. Spec. II. Porphyra hæmorrhagica. Land scurvy.

Burning pit-coal esteemed poisonous: and punished with death.

Lay-stalls common.

Public sewers deficient, or wanting.

the atmosphere with unhealthy fumes, but which is now become one of our most powerful ventilators, and consequently one of our most active agents in promoting the general health of the city, that a law was formerly in existence which made it a capital offence to burn it within the city walls; so that it was only allowed to be used in the forges of the environs. Sir Gilbert Blane informs us that the late Mr. Astle, keeper of the records in the Tower, told him that he had there discovered a document importing that under the operation of this law a person had been tried, convicted, and executed for this offence in the reign of Edward the first.—We learn also from Davenant * that heaps of the most noisome filth were suffered to accumulate in consequence of the imperfection of the public sewers; and that particular places were marked out and assigned for such accumulations, which were called lay-stalls; and hence the name of Lay-stall-street, which exists in one or two parts of the metropolis even in the present day.

Cause of the diminution of land-scurvy operative upon other diseases, and other districts.

The same happy causes, therefore, which have delivered us so generally from dysentery, remittent fevers, and even the plague itself, have freed us also from land-scurvy. And it has operated over all the other large cities of England as well as over the metropolis: and over the open country as well as over the towns. Even the remote districts of Somersetshire, not more than a century ago, formed a striking theatre for the exhibition of this tremendous scourge, as we learn from Dr. Musgrave's work †, published in the year 1703. Agri Somersetensis, uliginosi magnâ parte et depressi, äerem crassum et humidum trahentes, incolæ, maculis subnigris, ulceribus malignis, crurum dolore, respiratione difficili, lassitudine spontaneâ, nervorum debilitate, hydrope, gangrænâ, et istiusmodi aliis SCORBUTI exquisiti signis CREBERRIME divexantur."

The picture is strongly and fearfully sketched, and

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* Page 351. ed. 1673.

† De Arthritide Symptomaticâ.

GEN. IX. SPEC. II. Porphyra Hæmorrhagica. Land scurvy. Explained more at large; from remarks of Heberden.

precisely corresponds with the definition just offered. How then comes the country, as well as the town, to be so wonderfully and beneficially changed in our own day? "The same spirit of improvement" says an admirable writer *, from whom I have often had occasion to quote, and whose words I would always give rather than my own, "which has constructed our sewers, and widened our streets, and removed the nuisances with which they abounded, and dispersed the inhabitants over a larger surface, and taught them to love airy apartments, and frequent changes of linen; has spread itself likewise into the country; where it has drained the marshes, cultivated the wastes, enclosed the commons, enlarged the farm-houses, and established cottages. Few, perhaps, even among physicians, are aware of the extensive influence of these measures. Few have adverted with the attention it deserves to the prodigious mortality occasioned formerly by annual returns of epidemical fevers, of bowel complaints, and other consequences of poor and sordid living to which we are now entire strangers."

Hence the disease now rarely found in the public infirmaries.

In consequence of this extraordinary improvement in the best branch of physical philosophy, the same attentive pathologist tells us, that "For ten years, during which time he was one of the physicians to St. George's Hospital, the cases of genuine scurvy that were brought into this establishment and fell under his care did not amount to more than four;—not one of which was severe. In St. Bartholemew's Hospital, however, about the year 1795, owing to the very great severity of the preceding winter, various poor patients were received with all the characters of true porphyry; which, in one man, were carried to such a height that he died in a most offensive state the day after he was admitted."

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* Dr. Heberden, Med. Trans. Vol. IV. Art. VII.

SPECIES III.

PORPHYRA NAUTICA.

Sea-Scurvy.

SPOTS OF DIFFERENT HUES INTERMIXED WITH LIVID, PRINCIPALLY AT THE ROOTS OF THE HAIR; TEETH LOOSE; GUMS SPONGY AND BLEEDING; BREATH FETID; DEBILITY UNIVERSAL AND EXTREME.

Gen. IX. Spec. III. Why denominated sea-scurvy.

This species is denominated SEA-SCURVY, not from its being exclusively limited to mariners and extensive fleets, but from its being most common to persons thus occupied, and raging in such situations with the most fatal havoc. For the peculiar, as well as the general, causes which produce it at sea may also operate on shore, and have at times operated with merciless ravage in besieged garrisons, and among armies reduced to short provisions, or of unwholesome kinds, and worn down by fatigue, anxiety, and exposure to a damp atmosphere. Such seems to have been the condition of the Roman army under the command of Germanicus as related by Pliny; whose account of the disease that preyed upon it, though vague and unsatisfactory, coincides with the general appearance of sea-scurvy. We have similar descriptions in several of the expeditions that took part in the Holy Wars, and particularly that of St. Lewis as related by Joinville. We may hence conclude that sea-scurvy is not a disease of recent times alone *; though it does not appear to have attracted any very general attention till the melancholy result of the famous voyage

Has been found on land as well as at sea.

Sometimes in the Roman army:

and in the Holy wars.

Hence not a disease of recent origin, though not generally attended to till 1497, and afterwards.

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* Compare Richter, Pr. Disquisitio in Hippocraticas Scorbuti antiquitates, &c.

GEN. IX. SPEC. III. Porphyra nautica. Sea-scurvy.

of Vasco de Gama in 1497. The spirit of maritime discovery was at this time in full vigour and activity: the Portugueze, the Spaniards, the Dutch and the English vied with each other in their efforts to explore remote and unknown countries; the means of providing suitably for voyages of so great length were little known; and hence the disease frequently made its appearance during the progress of the next half century and raged with tremendous violence. It is well known, indeed, that so late as 1741 the fleet under Captain, afterwards Lord Anson, lost half its crew in the space of six months from the time it left England.

Symptoms and general history.

The diagnostics and progress of the disease are neatly and accurately concentrated by Dr. Parr. Its first appearance is evinced by a pale, bloated complexion, lassitude, and a disinclination to motion, with diminished energy, in the muscular fibres. If the gums, even in this early stage, be examined, they will be found spongy and apt to bleed on being touched; while the teeth are loosened in their sockets. The skin is sometimes rough, but more generally smooth, and shining, covered with blueish or livid spots, which do not rise above it; and these spots often coalesce in large blotches, particularly in the legs and thighs. About the same period, old ulcers often break out again, and the slightest mercurial preparation quickly produces salivation. The ulcers discharge often a fetid sanies, or are covered with a coagulated crust which is renewed whenever it is separated. The edges are livid with irregular granulations, which sometimes run into a bloody fungus. During the whole of this period, the appetite continues good and, though tensive pains arise and are necessarily distressing, yet, on the whole, the patient feels little inconvenience.

Accession.

Progress.

The state of the bowels is very various. The stools are often frequent and offensive, but there is sometimes an obstinate costiveness. The urine is commonly high-coloured and fetid; the pulse feeble, but rarely quick. A weakness in the joints appears early and increases with the disease; and a shrinking of the flexor muscles renders the limbs useless; producing the scorbutic paralysis of Dr. Lind. The calves of the legs fall away, with sometimes an irregular hardness, and at length become edematous: while the bones themselves, no longer supplied with a sufficiency of calcareous earth, give way at the callus of fractures; and those which have been formerly broken and re-united, become again separate at the line of reunion*.

Final stage.

The last stage is truly distressing. Blood is frequently discharged from the intestines, bladder, and other organs, The slightest motion brings on faintness, and often immediate death. Catchings of the breath and syncope, slightly and occasionally, indeed, found earlier, are now frequent, and dangerous; yet the sense of weakness is so much less than its real amount, that the patient often attempts exertion, and dies in the very effort: though, more frequently, he survives the attempt for a short time, and especially when animated by any powerful and pleasant motive, as the hope of getting on shore, or even of engaging in fight with an enemy.

Most obvious remote cause salt provisions.

Most obvious proximate cause putrescency of the blood.

The second how produced by the first as explained by Cullen.

The most obvious of the remote causes of sea-scurvy is salt provisions; and perhaps the most obvious of its proximate causes is a putrescent state of the blood: and hence these are the causes that have been commonly assigned from the time of Sir John Pringle to the present day. Dr. Cullen was so convinced of the active power of these two causes that he could hardly admit of the operation of any other. He supposes that the animal economy has a singular power of producing and evolving a saline matter from foods of every kind which does not naturally exist in them, but more especially from a diet that is wholly vegetable or wholly animal, though more so in the latter case than in the former. And he supposes, next, that such saline matter is of an ammonial kind; and that whenever it is produced or evolved in too large a proportion, it has a tendency, like neutral

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* Aitken, Essays on several important subjects in Surgery, &c.

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salts applied to blood when drawn from the body, to dissolve the crasis of the animal fluids, and render them putrescent, though, in a living state, they hardly ever proceed to an actually putrid stage. And applying these general remarks to the disease before us, he supposes that "the throwing into the body along with the aliment an unusual quantity of salt," which, by the action of the body, he further conceives to be changed into ammonia, must have a great share in producing that preternaturally saline, and consequently dissolved, or putrescent state of the blood which constitutes, in his view, the proximate cause of scurvy*.

In other places, indeed, Dr. Cullen supposes not merely that the introduction of an unusual quantity of salt into the blood may have a *great share* in producing sea-scurvy, but that it is probably its only cause. "Whether," says he, "it ever arise in any other circumstances is extremely doubtful; for there is hardly any instance of the disease appearing unless where salt meats had been employed, and scarcely an example where the long continued use of these did not produce it†."

Objection to this hypothesis.

The great stumbling block to this hypothesis is, that while the mineral acids, the most powerful antiseptics we are acquainted with, are of little or no avail, the plants most successful in curing the disease are those which are most alkalescent, and make the nearest approach to an ammoniacal property, as the alliaceous and tetradynamiæ.

Cullen's view too limited; as other causes cooperate, and sometimes without salt provisions.

This view is, therefore, too limited in every respect. That an excess of salt, and particularly of salted meat, is a powerful cause in the production of scurvy, is unquestionable; yet not more perhaps from its tendency to dissolve the fluids, for the blood retains a buffy crust even to the last, than from its rendering the salted meat less nutritious. But it is by no means the only cause.

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* Pract. of Phys. §§ MDCCCXII, MDCCCXIII.

† Pract. of Phys. §§ MDCCXCII, MDCCCXIII.

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In the preceding varieties, we have already seen it produced on land as well as at sea, and in some cases where there was no employment of salt provisions. And even sea-scurvy itself has occasionally been found to arise where the diet has by no means been saline; and in damp situations, whatever has been the diet, unless where peculiarly generous and stimulating: and we have one instance of its having occurred in a young woman who had subsisted almost wholly on tea.

Muscular fibres as much affected as the fluids:

In like manner, though the fluids of the body are loose and incoagulable, the muscular fibres are equally loose and incontractile; so that the latter, as justly observed by that excellent practical writer Dr. James Lind*, are as much affected as the former: and, if we attend to the course of the symptoms as they arise, we shall find that they are affected soonest; for the earliest signs of the disease are those of languor, debility, and dejection; though, upon the whole, the mental depression is less considerable than in land-scurvy; and, as we have already observed, there is a sense of mental energy to the last which is far more than commensurate with the actual strength of the body.

How far salt provisions alone might produce sea-scurvy it is scarcely worth while to inquire; for there is no extensive history of the disease in which they have acted solitarily; having always been more or less united with a cold or damp atmosphere, great fatigue, or a want of proper and invigorating exercise, want of ventilation, neglect of cleanliness, and very generally short rations, or an unwholesome diet of other aliments besides salt meat.

and affected before the fluids.

Now these are causes which must have a direct influence on the fibrous structure, and consequently on the whole organization of the body before the fluids can become affected; and it is easy to trace the changes which

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* Treatise on the Scurvy, &c. p. 277.

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occur in them subsequently to, and through the medium of this influence.

Digestive organs suffer first:

and influence the assimilating powers.

Under the circumstances we are now contemplating, the digestive organs suffer first; they become weakened in their power, and, for the reasons already stated when treating of MARASMUS, the weakness will extend through the whole range of the digestive chain, and influence all the organs of assimilation; whilst the lungs, the brain, the heart, and the skin, unite in the general debility.

Effects of this influence on the system;

and ultimately on the blood.

Hence none of the secretions will be sufficiently elaborated, or, perhaps, in sufficient quantity: there will be a less supply of sensorial energy, and a less vigorous action of the vascular system: a smaller formation of gluten, and elimination of carbone from the lungs. And hence, as a necessary consequence, the looser texture, and deeper hue of the blood: for as the secretion of gluten becomes diminished, whose quantity is dependent upon the firmness and elasticity of the living fibre, the blood must evidently be attenuated; and, as a smaller portion of carbon is discharged by the lungs, the blood must be proportionally of a darker colour.

Hence the solidum vivum alone asserted to be the seat of disease by some writers.

Necessary induction.

On this account Gintanner *, and other pathologists who refer sea-scurvy exclusively to a looseness of the solidum vivum, have more to advance in their behalf than those who refer it exclusively to a looseness of the fluids. But both are affected, and affected equally, though the former takes the lead. Sea-scurvy is, therefore, a disease whose proximate cause is a putrescent, though not a putrid state of the animal solids and fluids produced by an assemblage of antecedents co-operating to a common effect.

An acrimonious principle evolved.

In the course of their action, an acrimonious principle is unquestionably evolved, which seems to exacerbate the disease by increasing the tendency to decomposition: and it is highly probable that this acrimony is greatly augmented by the introduction of an excess of salt.

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* In Blumenbach, Bibl. Band. III. p. 527.

Gen. IX. Spec. III. Porphyra nautica. Sea-scurvy. All the causes necessary to be attended to in attempting a cure: and hence the general health of English fleets in modern voyages. Admirable manage- of Capt. Cook: and wonderful salubrity of his crews.

It is assuredly, however, not necessary that all the causes we have adverted to should operate at the same time. But it is of the utmost importance, both in preventing the appearance of the disease and in affecting its cure where it is present, to have the eye cautiously directed to every one of them, and to destroy its agency as far as we are able. And it is owing to the unremitting attention which is paid to these points in the navy of our own country, that sea-scurvy has long been rarely heard of in English fleets or English merchant ships; and that the globe is perpetually sailed over, and the highest as well as the hottest latitudes coasted and cruized in, without the generation of this destructive plague. And thus it has been ever since the celebrated and extraordinary circumnavigation of Capt. Cook in the Resolution; in which, by first laying down a code of regulations for the government of his crew, founded on the soundest judgement, and afterwards persevering in them with an unremitting spirit directed to all the subjects before us, he was enabled to fulfil his voyage of three years and eighteen days with a company of a hundred and eighteen men, traversing all climates from fifty-two degrees north to seventy-one south, with the loss of only one man by disease; and that man apparently labouring under a consumption before he left home.

His regulations the basis of all subsequent improvements in the medical as well as economical treatment.

The regulations and management adopted by Capt. Cook, are contained in his paper communicated to the Royal Society, and printed in its Transactions *. It is a paper of the highest merit, and was justly honoured with the Copley medal for the year. In conjunction with Sir John Pringle's additional remarks upon it †, it has laid the chief foundation for the present mode of treating this disease, and particularly of providing against its attack. The principles it unfolds should be canvassed by the nautical student in the communications them-

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* Vol. LXVI. year 1776. p. 402.

† A Discourse upon some late Improvements of the Means for preserving the Health of Mariners, &c. 4to. London.

Gen. IX. Spec. III. Porphyra nautica. selves, in conjunction with the later works of Sir Gilbert Blane * and Dr. Trotter †.

Sea-scurvy. With proper accompanying auxiliaries, the medical treatment simple. With the auxiliaries of cleanliness, proper ventilation, a dry atmosphere, and fresh provisions, the medical treatment of sea-scurvy is sufficiently simple, and the disease is found to yield easily. Chief anti-putrescents. Alkalescent plants. Coniferous tribe. The means more immediately effectual are all sorts of fermented liquors, acid fruits, the alkalescent plants as garlic, scurvy-grass, water-cress, garden-cress, brook-lime, which, notwithstanding their alkalescence, contain a great quantity of acescent matter, and by their acrid property promote the excretions of urine and perspiration; and the spruce fir, as well as other plants of the coniferous tribe, that contribute to the same purpose.

Rubus Chamæmorus. The fruit of the rubus *Chamæmorus*, or cloud-berry, found on boggy mountains in our own as well as in more northern countries, is also a cheap, and valuable antiscorbutic. In Sweden, from the recommendation of Linnéus principally, the berries are eaten very largely as a confection; the Laplanders, in whose gloomy region the plant grows in great abundance, preserve considerable quantities of the fruit in snow, and export them to Stockholm in casks.

Burdock. The burdocks were formerly very much extolled in scorbutic, and almost every other disease of the present order, and especially the arctium *Lappa*, clotbur, or great burdock, common to the wastes of our own country, Arctium Lappa. which was supposed to possess all the powers of the China and sarsaparilla roots. The root given in decoction, is certainly a diuretic, and diaphoretic; but as an antiscorbutic, it is of far inferior merit to the plants already mentioned.

Malt infusions. The infusion of malt as recommended by Dr. Macbride, does not seem to have answered all the expectation entertained concerning it. Dr. John Clark affirms freely and candidly that in various cases in which he tried it with all the concomitants of pure air and good nutriment, it had no influence either in removing the disease or in checking its progress. In consequence of which he preferred Dr. Silvester's antiscorbutic drink, which is made by boiling three ounces of cream of tartar, four ounces of juniper berries, two drachms of ginger in powder, and five pounds of coarse sugar in six gallons of water. After boiling half an hour, the whole is poured into a tub, and allowed to ferment. It may be drunk as soon as the fermentation commences, from one to three pints daily *.

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* Treatise on the Diseases of Seamen.

† Medicina Nautica.

Silvester's antiscorbutic drink.

Capt. Cook, however, thought very highly of malt sweet-wort, and esteemed it one of the most powerful antiscorbutics. The Russians, for want of sweet-wort or table beer, employ a brisk acidulous liquor, called quas, formed by fermenting small loaves made of ground malt and rye-meal. Dr. Mounsey tells us that this is the common drink of both the fleets and armies of the Russian empire. Oatmeal is also occasionally used for the same purpose, in the form of an acidulated gelatinous food denominated *soins;* made by infusing the meal in water till a fermentation commences and the liquor grows sourish, which, in a moderate temperature, will take place in about eight and forty hours. The liquor is then poured off from the grounds, and boiled down to the consistence of a jelly, which sweetened with sugar, and mixed with a little wine, yields an aliment not less palatable than medicinal.

Russian quas.

Soins.

Pure fresh water is also another material of great importance, not only in curing this disease but in guarding against it. And of so much moment did Capt. Cook esteem its purity, as well as its freshness, that he had the old stock poured away, though procured only a few days before, whenever he had an opportunity of obtaining a new supply. And at a time when it was universally conceived that the frozen water of the ice-bergs consisted of salt water, or was unwholesome as formed of frozen

Pure fresh water: its great importance.

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* Observations on the Diseases in long Voyages, &c. 8vo.

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snow, it was matter of most agreeable surprize to him to find that the melted ice of the sea, from whatever quarter derived, was not only sweet, but soft, and as wholesome as the purest spring or river water; thus affording him a supply he had no expectation of finding.

Means of preserving water pure.

The best means of preserving water pure, is by keeping it in casks charred for the purpose on their inner surface: and the best means for restoring it to purity when it has become foul and offensive, is by mixing a little fresh powdered charcoal with every cask before it is tapped, and in drawing it off through a stone filtering cistern, containing a bed of the same material.

Gasses.

As fermented liquors have been found serviceable, many of the gasses have been tried in their simple form, and some of them have been thought serviceable; but their carriage, or the means of obtaining them extemporaneously, is highly incommodious: and it was well observed by that excellent navigator La Pérouse, that seamen may be gorged with bottles of them without deriving a thousandth part of the benefit produced from good slices of fresh meat, fruits, and herbs.

Sick should not be suddenly removed ashore.

As the vessel of a tainted crew approaches land, nothing is more common, or apparently more reasonable, than for those that are most affected to be most anxious to be put on shore at the moment. Yet, for reasons we have already urged, this should rarely be complied with; for the real debility is so much greater than the apparent, or, in other words, the energy of the mind is so much greater than that of the body, that they often sink under the labour of the removal, and sometimes die before they reach the asylum provided for them. In cases of extreme weakness, the external air alone, and especially when sharp or in a current, is sufficient from its pressure and stimulus to puff out the little flame that flickers in the vital lamp; a fact which, to adopt the words of Dr. Trotter, "has been long observed, and recently confirmed by five men dying in the boat belonging to the Prince of Wales ship of war, between the Downs and Deal hospital."

Often sink in the attempt.

GENUS X.

EXANGIA.

ENLARGEMENT, BREACH, OR OTHER MORBID PERFORATION OF A LARGE BLOOD-VESSEL, WITHOUT EXTERNAL OPENING.

GEN. X. Present position of the genus justified.

THE expediency of placing this genus in its present situation among diseases dependent on a "morbid state of the blood or *blood-vessels*," would be obvious to every one even though the maladies it embraces were in every instance local. This, however, is rarely the fact; for the first two species included under it result commonly from a peculiar diathesis; and the last is productive of severe, and often fatal constitutional, disorder. These species are as follow:

1.	EXANGIA ANEURISMA.	ANEURISM.
2.	——— VARIX.	VARIX.
3.	——— CYANIA.	BLUE-SKIN.

SPECIES I.

EXANGIA ANEURISMA.

Aneurism.

PULSATING TUMOUR OF AN ARTERY.

GEN. X. SPEC. I. Causes.

THE disease of aneurism, which consists in a permanent dilatation or breach of the coats of an artery, may be

Gen. X.
Spec. I.
Exangia
Aneurisma.
Aneurism.
That of debility most common.
May be local or general.
Aneurismal diathesis: producing an aggregate, or succession, of aneurismal tumours.
Supposed causes: all resolvable into vascular debility.

produced by external violence as a strain or puncture, or by arterial debility. The last is the more common cause, and it may be local or general: it may be limited to the part in which the aneurismal swelling occurs, or it may extend through the whole range of the arterial system, which is sometimes found to be universally, though irregularly, feeble, and consequently feebler in some parts than in others. It is this last condition of the arteries which constitutes what has been called the aneurismal diathesis: and under its influence aneurismal tumours not unfrequently occur in different arteries of the same individual, simultaneously or in succession *. De Haen gives a singular example of this in a boy of seventeen †: and Lancisi has conjectured this diathesis to be produced by gout, rheumatism, apoplexy, and a sedentary life ‡; to which Guathani has added syphilis §, and Freer, still more lately, inflammation of the arterial tunics. In all which cases we can trace the common fact of great vascular debility induced generally, or in the particular limbs which have been the seat of the predisposing disease. It is often accompanied with a calcareous thickening and rigidity of the arterial trunk in particular parts.

Disease appears under four varieties.

Aneurism is ordinarily represented as appearing under only two forms, the true, or as Mr. B. Bell more particularly denominates it the encysted ‖, and the false or diffused. To these it is necessary to add the varicose of Dr. Hunter, and the cardiogmus of the Greek writers; thus presenting us with the four following varieties:

α Cysticum.	Encysted aneurism.
β Diffusum.	Diffuse aneurism.
γ Varicosum.	Varicose aneurism.
δ Cardiogmus.	Aneurism of the præcordia.

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* Saporta, Dissertatio de Tumoribus.

† Rat. Med. iv. 2. § 7.

‡ De Subitaneâ morte, 100.

§ De Aneurismatibus.

‖ Syst. of Surg. Vol. i. Ch. iv. p. 196.

Gen. X. Spec. I. α E. Aneurisma cysticum. Encysted aneurism. Distinctive character.

The TRUE OR ENCYSTED variety forming the aneurism by dilatation of M. Petit*, is characterized by the tumour being circumscribed or having a defined outline; and is produced by a yielding or dilatation of the coats of an artery so as to form a sac, which constitutes the sphere of the arterial enlargement.

Description.

The tumour, when first observed, is small and excites little attention; for there is no pain, the skin is of its natural appearance, and the tumour vanishes when pressed upon by the finger. But during the pressure a pulsation is clearly distinguishable corresponding with that of the artery below. As the disease advances, the tumour increases; and when it has gained considerable magnitude, the skin becomes pale, and even edematous; the pulsation still continues, but the tumour yields less regularly to the pressure of the finger than heretofore, being soft and fluctuating in some parts, but, from coagula lodged and hardened in the sac, firm and resisting in others. The seat of the aneurism at length becomes distressingly painful from the increased circulation and swelling; the skin assumes a livid hue, and seems verging to a gangrenous state; a bloody serum oozes from it, and it often ulcerates: when the walls of the arterial sac, meeting with less support than hitherto, give way, the blood bursts forth with violence, and, if the artery be large, soon produces death by inanition.

Internal aneurisms only to be suspected from general symptoms.

Such is the general course of encysted aneurisms that show themselves externally; but as they often occur in vessels more deeply seated, we cannot so readily mark their progress, and can often only guess at their existence. They have been discovered, however, by particular symptoms in the chest, neck, head, forehead, temples, and back, as well as in every limb; and it is difficult to say which part is most subject to their appearance.

Sometimes mistaken for other diseases.

In an early stage of the disease, it cannot easily be mistaken for any other; for the signs of a regular pulsa-

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* Memoirs de l'Acad. des Sciences, 1736.

Gen. X. Spec. I. α E. Aneurisma cysticum. Encysted aneurism.

How distinguishable.

tion, absence of pain, and disappearance of the tumour on pressure, are sufficient to distinguish it. But when, in the progress of the complaint, the pulsation becomes almost imperceptible, and the tumour hard, it has been confounded with other encysted tumours, scrophulous swellings, and abscesses. The last is the most common error, and, by leading to an injudicious opening, has sometimes proved a fatal one *.

The disease sometimes finds a natural cure:

when unconnected with an aneurismal diathesis.

The disease has occasionally been cured naturally by a deposit of coagula in the sac, which, as they have gradually increased, have gradually also filled up and obliterated the cavity of the sac. Mr. Hodgson has given a curious case of this kind in his treatise, "on the Diseases of Arteries and Veins." In such instances, however, it is probable that the disease is unconnected with an aneurismal diathesis, and is a result of some local cause.

Sometimes cured by pressure.

Compress in general should be easy and only afford support.

But a tight compress has sometimes proved most successful.

Illustrated from Perceval's notes.

Pressure, under the same circumstances of local affection, has sometimes produced a like good effect. Dr. Albers of Bremen gives an instance of this even in an aneurism of the femoral artery †. It has commonly been said that the compress should never amount to more than an easy support to the weakened and enlarged organ ‡: and it is very probable that tight bandages, by impeding the circulation in the adjoining veins as well as arteries, have often proved injurious. Dr. Perceval, however, in the manuscript comment with which he has enriched the author's volume of Nosology, has the following notice under the present head; seeming to show that even a tight compress has at times been of the highest advantage; and a like success is related by Acrel in an aneurism of the aorta §. "In the rebellion of 1798, an officer received a wound from a bayonet which grazed the left carotid artery and produced a pulsatory tumour: this was kept down by a spring collar, and at length disap-

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* Reinesius, Schola Ictorum Medica, p. 321.

† Trans. of Medico-Chirurg. Soc. Vol. IX.

‡ Cagnior, Dessault, Journ. de Chirurg. Tom. II.

§ Chirurgische Vorfälle. Band. I. 44.

Gen. X.
Spec. I.
α E. Aneurisma cysticum.
Encysted aneurism.

peared. Many years after, having lived rather freely, he died dropsical. Previous to his death, he had a most violent palpitation of the heart, and discharged by stool immense quantities of blood. The heart was not found enlarged, but the cavity of the left carotid was almost entirely obliterated."

Patient should be kept in a reduced state.

Spare diet alone has effected a cure.

Aneurism has ceased spontaneously.

In connection with pressure, great benefit has also frequently resulted from keeping the amount of the circulating fluid in a diminished state by occasional venesections, purgatives and a spare diet. Morgagni relates a case in which such a regimen alone effected a cure when commenced early *. Yet it is obvious that in some habits a cure, even of the same artery, is obtained much more easily than in others: and hence it seems sometimes to have taken place spontaneously, of which an example is given by Mr. Crampton in the Medico-Chirurgical Transactions †; and by Mr. Ford, in a journal of an earlier date ‡.

Operation only to be performed in extreme cases.

Yet has been performed successfully on arteries of large diameter.

Every palliative mean should be had recourse to before an operation is resolved upon: for even under the most favourable circumstances such a step is hazardous, and it is peculiarly so when the aneurism is connected with a diseased state of the arterial trunk or the whole arterial system, of which it is seldom possible for us to form a correct judgment. To describe the nature of the operation would be to travel into the province of surgery. I may, however, observe that in cases of necessity it has often been performed with full success, and even a perfect use of the affected limb, in trunks of a very large calibre. Mr., now Sir Astley Cooper has given an account of two cases in which the operation was effected on the carotid artery. The first proved unsuccessful from the long standing and size of the sac, which pressed with perpetual irritation on the larynx and pharynx, exciting frequent fits of coughing, and preventing de-

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* De Sed. et Caus. Ep. XVII. Art. 30, 31.

† Vol. VII. p. 341.

‡ Lond. Med. Journ. Vol. IX.

Gen. X. Spec. I.

glutition. The second case terminated favourably; but the tumour was smaller and of more recent growth.

β E. Aneurisma diffusum. Diffuse aneurism.

In the SECOND VARIETY OF DIFFUSE ANEURISM, the aneurism by infusion of M. Petit *, the coats of the artery, instead of being dilated into a sac, are divided; and, the blood flowing at large into the cellular or other surrounding parts, the tumour is extensive and undefined.

Generally produced by external violence.

Pressure of no benefit, and the operation mostly indispensable.

Success of B. Bell in a formidable aneurism of the iliac artery.

This is usually the result of external violence: the swelling often spreads to an unlimited range, and the progress towards a rupture of the integuments is more rapid than in the last. Here pressure is of no avail, and even mischievous; since it will more effectually obstruct the course of the blood in the surrounding veins, than in the divided artery: and the operation can rarely be dispensed with. Mr. B. Bell was fortunate enough to succeed in the case of a division of the great ileac artery just at its egress from the pelvis. The division was produced by an accidental and forcible entrance of a pair of long-pointed scissors into the hip. The patient fainted from loss of blood, and the wound on the surface was healed. The aneurism, however, continued; fresh blood was perpetually poured forth; in six weeks, the tumour on the hip became enormous, the thigh was rigidly contracted, the ham recurvated, the leg shrunk, cold, and useless. On making an incision eight inches long, the blood issued in such torrents that the patient fainted, and was supposed to be dead or dying, but the artery could not be traced. At this critical moment Mr. Bell ran the bistoury upwards and downwards, and at once made the wound two feet long: when thrusting his hand to the bottom of the tumour, he felt the blood still jutting warm from the artery, laid hold of it, and found it to be the posterior iliac cut through transversely. He tied it, and, loosely dressing the wound, left the patient on a bed in the operation-room, as he was too much re-

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* Desault, Journ. de Chirurgia, p. 321.

duced to be removed. In seven months he was completely restored to health, and recovered the entire use of the affected leg.

γ A. varicosum. Varicose aneurism.

How produced.

THE THIRD VARIETY OR VARICOSE ANEURISM was first distinctly pointed out by Dr. Hunter, who characterized it by this name. It is produced by puncturing an artery through a vein, that lies immediately above it and upon it, as in blood-letting at the arm, so that the arterial blood flows from the arterial puncture, not through the cellular substance, but into the superincumbent vein through the corresponding venous puncture. In this case, the tumour is elongated, taking the course of the vein, which is hereby distended and rendered varicose. Sometimes, indeed, where the venous communications are frequent, all the adjoining veins participate in the distension, and are equally affected. The tumour, as in the first variety, disappears upon pressure; and, as soon as the pressure is removed, the blood issues from the arterial puncture with a whizzing sound and a tremulous motion, rather than a distinct pulsation.

Description.

Least dangerous of all the varieties: and generally relieved by pressure.

This is the least dangerous of all the forms of aneurism, and that in which pressure may be applied most successfully. It has sometimes produced a radical cure; but in all instances so far succeeded as to render the operation unnecessary, provided the patient passes a quiet and unfatiguing life: for it has been known to exist twelve, twenty, and even thirty years, without any serious injury to the general health.

δ A. Cardiogmus. Aneurism of the præcordia.

The FOURTH VARIETY is distinctly a constitutional affection, and usually of considerable distress and oppression. It is characterized by an obtuse intumescence and constant disquiet of the præcordia; with a sense of internal weight and pulsation increased on the smallest motion. It is the CARDIOGMUS of Galen and Sauvages; the aneurisma præcordiorum of many authors, and the polypus cordis of others. The symptoms are usually found on dissection to proceed from an aneurismal enlargement of some part of the substance of the heart, or the larger vessels in its immediate neighbourhood, some-

Description.

Common causes.

GEN. X. SPEC. I. ϑ A. Cardiogmus. Aneurism of the præcordia.

times accompanied with, and perhaps produced by, a polypous concretion; and sometimes without any such substance whatever: and where the larger vessels are affected they are here, more than in any other variety, thickened and rendered rigid by irregular deposits of calcareous or ossific matter.

Found chiefly in advanced life and where there is organic debility.

It is found chiefly in persons of advanced age; but whether in young or old is clearly a result of organic debility. It is well observed, indeed, by M. Rostan, that a dilatation and thickening of the walls of the heart are not a consequence of great power or strength of constitution with energy of healthy action; but is generally caused by that state of the arteries which is an ordinary result of old age, in which they lose their natural elasticity, and become ossified, thick, inorganic tubes. This ossification affects the valves of the heart as well as the vessels in its neighbourhood, whence the heart is perpetually oppressed, and called upon for increased action: which increased action itself is another cause of increased thickening in the cardiac coats.

Sometimes produced by a distinct cyst in the heart or adjoining arteries.

The disease not unfrequently proceeds from a distinct cyst sometimes found in the substance of the heart, as the right auricle, of which an example is given by Bartholin [*]; or the left ventricle, as stated by Dr. Douglas [†]; but more usually in the arch of the aorta.

Cause sometimes capable of being traced during life.

In many of these cases we can trace the cause; for the aneurismal artery is at times as contracted in the vicinity of the sac, as if it had been tied by a ligature. The aorta has, occasionally, in this manner been rendered altogether impervious, the circulation being continued by an enlargement of the anastomosing vessels [‡].

By Morgagni ascribed to a narrowness of the larger arteries.

On this account, Morgagni ascribes the disease before us to a narrowness of the larger arteries as its common cause; and hence explains why it is so

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[*] Act. Hafn. IV. Obs. 47.

[†] Phil. Trans. Vol. XXIX. 1414-1416.

[‡] Cooper and Travers's Surgical Essays. I. p. 125.

Gen. X.
Spec. I.
Exangia
Aneurisma.
Aneurism.
Medical
treatment.

frequently found among tailors, and other sedentary workmen *.

The medical treatment can be rarely more than remedial. Fatigue and great exertion must be sedulously avoided, together with keen mental excitement. The diet should be light, the meals and hours of rest regular; and the exercise should be that of a carriage. The bowels must be attended to; and, where the palpitation or other distress is peculiarly troublesome, it may sometimes be relieved by camphor, volatile alkali, and tincture of hyoscyamus.

We may observe, before quitting the subject, that the largest aneurisms have been those of this quarter, and particularly of the aorta, as there is here the greatest force of action. Littre gives a description of one of the superior trunk that ascended as high as the maxilla †; and Teichmeyer of another that burst into the pericardium ‡. From their extent and pressure they often erode the cartilaginous and even bony substance of the ribs; and La Faye relates a case in which a part of the sternum as well as two cartilages of the ribs were hereby destroyed §. In an enormous aneurism of the abdominal aorta, Morgagni mentions that the posterior wall of the artery itself was destroyed, the neighbouring parts supplying the place of a wall: || and in a like aneurism of the thoracic branch he found the bones in the vicinity broken and demolished by the force of its pressure ¶.

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* De Sed. et Caus. Ep. XXI. 49. XXVI. 31—33.

† Mem. de l'Acad. Royale des Sciences à Paris. Ann. 1707.

‡ Dissert. de stupendo Aneurysmate brachii, &c. Jen. 1734.

§ Phil. Trans. N. 287.

|| De Sed. et Caus. Morb. Ep. XL. 26.

¶ Ep. XVII. 25—27.

SPECIES II.

EXANGIA VARIX.

Varix.

SOFT, LIVID TUMOUR OF A VEIN.

GEN. X. SPEC. II. Description. Resemblance to the encysted aneurism.

THIS disease is to veins what the true or encysted aneurism is to arteries. The coats of the veins are preternaturally dilated, and more in some parts than in others, so that a vein thus enlarged to any considerable extent often appears to be a chain of venous cysts; and as, contiguous veins often communicate, the enlargement is not unfrequently extended from one to another till the whole forms a plexus of varices, and every part seems ready to burst. In some instances, they are said to have bursted. This assertion, however, wants confirmation: but if it were true, we should be put into possession of a diffused as well as an encysted variety of veins, and the disease would make a still nearer approach to that of arteries.

The varix sometimes said to burst: in which case it resembles the diffused aneurism.

Found chiefly in the lower extremities. How produced.

This affection mostly occurs in the veins of the lower extremities in consequence of their being the most dependent part. They often arise spontaneously in persons of lax fibres; but are far more frequently a consequence of undue fatigue, strains, cramps, or pressure. The most frequent cause is a pressure of the fetus in pregnancy against the external iliac veins, in consequence of which the blood ascends with difficulty from all the veins below, which become distended and weakened by its accumulation.

Sometimes found in other parts.

From strains or other causes however, varices have been occasionally traced in other large veins than those

Gen. X.
Spec. II.
Exangia Varix.
Varix.

of the extremities. Thus Tozelli discovered it, after death, in the vena *azygos* [*]; and Michaelis describes one that terminated fatally in the jugular vein [†]. They are also met with in the spermatic veins; and in this position have very generally been described under the incorrect name of circocele or varicose rupture. Morgagni asserts that the spermatic varix appears more frequently on the left than on the right side, from the insertion of the spermatic vein into the emulgent [‡].

Circocele what.

Medical treatment.

The best remedy in all cases where it can be applied is a moderate, steady, and continued pressure: which, where the varix occurs in the legs, is easily accomplished by an elastic stocking, or, which is preferable, a circular bandage of fine elastic flannel. Dauter's plan of using cold water is also a very simple, and, where the varix is fresh, not unfrequently a very efficacious remedy [§]: but how far a solution of mineral acids or metallic salts may add to its virtue, as recommended by some practitioners, the author cannot affirm from his own practice.

Cure attempted by division.

Often followed by more serious swellings of great length.

From their disfigurement and great discomfort varices have sometimes been attempted to be removed by a division between two ligatures, not widely different from the operation for the aneurism. The attempt has, in several instances, succeeded; but it has more frequently failed, and a serious and far more extensive enlargement of the vein with varicose prominences has followed, similar to that which sometimes occurs in drawing blood from the arm; of which till of late years no very intelligent explanation has been given, and which I shall therefore endeavour briefly to illustrate.

Nature of such swellings explained.

This singular and painful line of swelling was at first supposed to arise from the prick of a nerve; but the nerves liable to be wounded in bleeding are mostly small and unimportant; while others are often

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[*] Prima Raccolta di Osservazioni medici, Firene, 1752.

[†] See Richter's Chirurgische Bibliothek in loco.

[‡] De Sed. et Caus. Morb. Ep. XLIII. Art. 34.

[§] Von dem äuserlichen örtlichen Gebrauche des Kalten Wassers, &c. Leips. 1784. 4to.

Gen. X. Spec. II. Exangia Varix. Varix.

Nature of these extended swellings explained differently by different writers.

pricked and wounded in many of the common operations of surgery without any serious consequence whatever. The mischief has by other writers as Heister, Garengeot, and Haller, been ascribed to wounding a tendon or its aponeurosis; but unluckily for such physiologists, tendons in other places are often torn or wounded with very little inconvenience; even the Achilles tendon, the largest in the body, is frequently broken, without any of the severe symptoms that sometimes arise from blood-letting. Besides which, the accident from bleeding occurs as frequently when a person has been bled in a vein which has no tendon near it, as when there is reason to expect that a tendon may have been wounded. It happens as often that a swelled arm is the consequence of bleeding in the cephalic or cephalic-median vein, as of bleeding in the basilic or basilic-median.

J. Hunter's explanation.

Mr. J. Hunter was the first physiologist who ascertained the real cause of the mischief before us: and traced it to a general principle which he laid down as applicable to all internal cavities; namely, that when injured or rendered otherwise imperfect they are often apt to inflame at the injured part, and to have the inflammation spread rapidly over their whole extent, as I have already had an opportunity of observing under peritonitis, puerperal fever, and on various other occasions. He was first led to this view of the cause in the case of veins from noticing what occasionally happens to horses. It is no uncommon thing for hostlers, out of an unnecessary or ill-judged care, to bleed these animals in the neck even when in perfect health: and in several instances of this kind Mr. Hunter had observed that the neck swelled, and the horse died; and, on examining the nature of the disease by dissection, he found that the cavity of the vein was inflamed, and that the inflammation had spread along its internal surface to the chest, sometimes even to the heart itself. And he afterwards found a like effect produced in the veins of the human arm, where inflammation had succeeded to bleeding; and particularly in one case that occurred in St. George's hospital, being that of a

GEN. X. SPEC. II. Exangia Varix. Varix.

man who died suddenly on the eighth day after having been bled in the basilic vein of the right arm, and having suffered from inflammation as a consequence. On dissecting the arm, he found not only that the cavity of the vein had inflamed, but that the inflammation had extended from the puncture, which had been made by the lancet in blood-letting, as high as the axilla; proceeding also to some distance below the puncture. About the middle of the arm the vein had suppurated; and, from the ulceration or absorption of parts which attends abscesses, the vein was divided into two; and each extremity, like the internal surface of the abscess, was irregular and jagged.

Mr. Hunter was disposed to think that the principal cause which produces the inflammation of a vein after bleeding is the want of a disposition to heal, arising either from its being exposed, or in consequence of the lips of the orifice in the skin not being properly brought together. And he hence strongly advises that the sides of an opened vein should at all times be made to approximate as accurately as possible, and that the orifice in the skin should be drawn to one side of that in the vein, so as to make the skin do the office of a valve to the venal opening*.

Explanation plausible but a something still wanting in it: probably a constitutional irritability unites with the injury:

There seems, however, in this explanation to be a something wanting; and I cannot avoid thinking, as in the case of puerperal fever, that there must be at the same time some peculiar local or constitutional irritability predisposing the injured part to run into an inflammatory action.

and sometimes a divided nerve.

It is also perfectly clear that the tingling and shooting pains which succeed venesection, are sometimes produced by a partial division of a nerve; of which Mr. Sherwen of Enfield has given a very striking example in a case that only yielded to an entire division of the nerve by a transverse section above the orifice, after every other attempt had been tried in vain†.

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* Edin. Med. Comment. Vol. III. p. 430.

† Id. Vol. V. p. 210.

SPECIES III.

EXANGIA CYANIA.

Blue-Skin.

SKIN MORE OR LESS BLUE; LIPS PURPLE; GENERAL HEBETUDE, AND INACTIVITY.

Gen. X. Spec. III. General character of the species.

This species is designed to express that singular appearance and diseased state of the entire system produced by a connate communication of the two ventricles of the heart, and consequently an imperfect discharge of the carbone of the blood at the lungs which constitute the proper organ of its elimination. From the Greek *κύανος*, or "blue," Dr. now Sir Alexander Crichton, in allusion to the colour of the skin by which it is peculiarly distinguished, has elegantly named it CYANIA, and the term has been adopted, as a specific appellation on the present occasion.

General physiology. State of the circulation before birth.

Antecedently to birth, the lungs are of small comparative importance to the functions of life and growth, and hence no more blood seems to circulate through them than is necessary for their developement and health. The florid, or decarbonated blood, instead of being received from the lungs by the pulmonary veins, is received from the placenta by the venæ cavæ, and passes for the most part at once into the general circulation, chiefly by means of the foramen ovale by which the two ventricles communicate, and partly by means of the ductus arteriosus, by which the pulmonary artery at this time anastomoses with the aorta; that portion of blood only which escapes through this canal flowing forward into the collapsed substance of the lungs;

Gen. X. Spec. III. Exangia Cyania. Blue-skin. Change produced by birth.

amounting probably to not more than a third or a fourth part of the whole.

Immediately on birth, however, the plan of decarbonization is immediately changed. The fetal duct and foramen are closed, and the whole mass of blood flows black instead of florid from the venæ cavæ into the heart, and is sent by the pulmonary artery to the lungs for ventilation instead of to the placenta, in which organ, by the disengagement of the carbone with which it is loaded, and partly perhaps by the absorption of oxygene from the respired air (for the subject is still open to controversy), it acquires its perfect elaboration and florid hue.

Course of the disease hence obvious: Venous blood returned into the circulation not disburdened of its load of carbone.

It is hence obvious that if, in consequence of any aberration from the common law which regulates the wonderful change that thus takes place in the infantine heart and its attached vessels at the time of birth, either of these communications should remain open, the venous or black-blood must wholly, or in a very considerable degree, be thrown back again into the general circulation instead of passing to the lungs: and the minute arteries on the surface, which give to the complexion its tinge, being filled with the same, the general hue must be changed from a florid to a blue or purple, more or less deep according as the pulmonary circulation is more or less impeded.

It is this natural defect that constitutes the disease before us. In the varicose aneurism a small part of the florid or arterial blood flows through an accidental opening into the veins, but never in such a quantity as to disturb the economy of general health. In cyania a much larger, but variable proportion, of the black or venous blood flows by a physical opening into the arteries; and usually with serious inconvenience to the general health, most commonly indeed with fatal effects.

Preternatural openings in the foramen ovale may exist to a certain extent without serious mischief:

How far the ordinary disengagement of carbone from the blood may be dispensed with, or, in other words, to what extent these connate communications may remain, and the present disease take place without endangering the life, we have no exact means of ascertaining. Dissections have shown us that the foramen ovale has continued par-

GEN. X. SPEC. III. Exangia Cyania. Blue-skin.

but never so largely as to allow a blue tinge to the skin.

tially open to old age, without much or even any interference with the common functions of health*: but we may confidently assert that, whenever so large a portion of venous blood is thrown into the arterial circulation as to give a blue or purple tinge to the lips of the skin generally, all the functions will be performed feebly, and there is great danger that the infant will never reach the age of puberty. There may be living power enough in the blood to support the growth of the frame during the retired and quiet tenor of infancy, in which there are no sudden exertions or calls for a more than ordinary expenditure of sensorial power: and hence, it is no uncommon thing for a child to survive the first three or four years of life with a skin completely blue, and consequently with a full proof that the foramen ovale, or the ductus arteriosus, or both, are open to a very considerable extent, and that not more than perhaps a third or fourth part of the general current of the blood passes into the lungs and undergoes the process of ventilation. But as soon as a more active period of life commences, and the child is trusted to his feet, and engages, or should engage, in the pursuits or even amusements of boyhood, with all its physical and moral excitements, the living power is not adequate to the demands made upon it, and he sinks beneath their oppression, and generally expires in a fainting fit. There is commonly, moreover, through the short and pitiable term of his existence the clearest proof of general torpitude and deficient energy; every exertion is a trouble, every stimulus produces fatigue: the muscles enlarge, but they want vigour and elasticity: and, so far as I have seen, the faculties of the mind are equally blunted. The celebrated blue-boy described by Dr. Sandifort, advanced farther towards an adult age than is by any means common. Here the aorta took its rise from both ventricles; the pulmonary artery was scarcely pervious to a small probe, and the difficulty of

Why infancy capable of enduring such a condition, and not puberty or adolescence:

Hence fatal in the last two stages:

and even in infancy productive of great debility and torpitude.

Blue-boy of Sandifort.

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* Geschichte einer chirurg. Privatgesellschaft in Kopenhagen.—Bertholin. Anal. Reform. Lib. LI. cap. 8.

Gen. X. Spec. III. Exangia Cyania. Blue-skin.

passing the probe from the heart to the lungs was greater than in the contrary direction. The patient was affected with an asthma from his second year and terminated the miserable series of his sufferings in his thirteenth*. In the case of a young female related by Morgagni the term of life was protracted to the sixteenth year; but there appears to have been a somewhat freer communication with the lungs, notwithstanding that the foramen ovale was open wide enough to admit the little finger. The patient, however, was sickly from her birth, and laboured under great general debility; her respiration was difficult, and her whole skin of a livid colour†.

Examples from other authors.

Misformations of the heart still more complicated sometimes not inconsistent with a condition of life.

Life, however, for a short time has been maintained under still more complicated misformations of the heart, and adjoining arteries. Mr. Standert gives the case of a blue-child that lived ten days, in which the two ventricles communicated, there was no pulmonary artery, but its place was supplied by an artery that branched off to the lungs from the aorta in the situation of the ductus arteriosus, the blood from which was returned by four small pulmonary veins‡. And in Dr. Baillie's Morbid Anatomy is a still more complicated case of a child that lived about two months, in which the two ventricles communicated, but seemed to change their respective offices; the aorta arising from the right ventricle, and the pulmonary artery from the left. The arterious duct was also open§.

Medicine of no avail.

In distressing affections of this kind the art of medicine is unavailable; and all we can advise is perfect tranquillity, a light diet, and attention to the state of the bowels. In one instance, and only one, I have seen the blueness of the skin gradually disappear a few months after birth, and the child grow stout; evidently proving that the morbid communication, whether in the foramen or the arterious duct, was closed by a natural process.

Cyania sometimes cured naturally.

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[*] Observationes anatomico-pathologicæ, Lugd. Bat. 1777. 4to.

[†] De Caus. et Sed. Ep. XVI.

[‡] Phil. Trans. 1805, p. 228.

[§] Plate VI. p. 21.

GENUS XI.

GANGRÆNA.

Gangrene.

THE DEATH OF A PORTION OF THE BODY, WHILE THE REST CONTINUES ALIVE, OFTEN IN A SOUND STATE.

Gen. XI. Gangrene, sphacelus and necrosis compared.

How related in the present system.

Gangræna, sphacelus and necrosis have been hitherto used in very indefinite senses; sometimes as synonyms, and sometimes as different stages of a common disease. And even in this last view they have rarely preserved their gradations with any thing like an uniform consent; the whole of them sometimes expressing the highest and sometimes an inferior degree of the malady they equally import. For reasons stated in the volume of Nosology, the first of these terms is here employed in a generic sense, and the two latter as subdivisions or species included under it; sphacelus importing mortification as it occurs in its ordinary form, with lividity, vesication, ulceration, and fetor; and necrosis that insensibility and shrivelling of the flesh which occasionally occurs in paralytic limbs. The genus will also extend to two other species; as the gangrene which commences in a bone and is usually called a caries; and that peculiar form of the disease which begins insensibly in the extremities, and spreads without fever in an ascending direction till the affected limbs drop off in succession.

All these will therefore be treated of in the following order:

1.	GANGRÆNA SPHACELUS.	MORTIFICATION.
2.	——— USTILAGINEA.	MILDEW-MORTIFICATION.
3.	——— NECROSIS.	DRY GANGRENE.
4.	——— CARIES.	CARIES.

SPECIES I.

GANGRÆNA SPHACELUS.

Mortification.

THE DEAD PART SOFT, MOIST, CORRUPT, AND HIGHLY OFFENSIVE.

Gen. XI. Spec. I. General character.

Mortification is a disease of debility; it is a total torpitude or insensibility of an organ while in the possession of its ordinary fluids and general structure, how much soever that structure may be injured, produced by a discontinuance of the living principle that has hitherto actuated it; in consequence of which the laws of animal chemistry, thus far held in subjection by the superior sway of the living power, acquire an ascendancy, a play of chemical affinities takes place, and putrefaction, or a decomposition of the organized substance, and a restoration of its constituent parts to their elementary forms, necessarily ensues.

Produced by opposite extremes of action.

This total debility, insensibility, or torpitude, may be produced by too much or too little action or excitement; for the vital flame may be supplied so rapidly as to destroy by its own violence, or there may be no supply whatever. And we are hence furnished with the two following varieties of the disease:

α Inductus.	Superinduced Mortification.
ϐ Atonicus.	Atonic Mortification.

Ordinary causes.

The ordinary causes of the first are fever, inflammation, local violence, or severe cold. Those of the second are old age, impure air, scanty or innutritious food; and, for the same reason, as Sir Clifton Wintringham has

Gen. XI. Spec. I. Gangræna Sphacelus. Mortification.

observed, ossification in the arteries of the part affected; which is, indeed, chiefly a consequence of old age*.

First variety exemplified.

Where mortification ensues, upon a severe contusion or other injury, in a person of florid and vigorous health, and in the prime of life, we have an example of the FIRST VARIETY. There is in this case high inflammatory action, great heat, swelling, and pulsation; the vessels are supplied with a superabundance of living power, (the excitability of the Brunonians), and are in consequence excited beyond their strength; they are hence worn out by the impetuosity of the toil, lose their tone, and become torpid and insensible from the vehemence of their own exertion.

Exemplification of the second variety.

The SECOND VARIETY may be illustrated by the mortification which so frequently takes place in the extremities of persons already exhausted by hard labour, intemperance, or advanced years, and whose extremities are bloated and anasarcous. Instead of a superabundant supply of living power there is, in this case, little or no power whatever; for the sensorial fluid is secreted so sparingly as to be almost incapable of reaching the extremities, and particularly the lower limbs: the muscular fibres of which, however, are in themselves so irritable that a more than ordinary excitement is scarcely capable of rousing them; and hence they yield to the process of putrefaction from a cause the very reverse of what operates in the preceding case.

Symptoms distinctive and general.

Under the first form, there is more pain and fever, as there is more sensibility and violence, than under the second; and, on this account, the destructive march is more rapid; but with these exceptions the symptoms, which are the ordinary ones of putrefaction, are the same. The colour of the skin changes to a dark red, or livid hue; the cuticle is separated from the true skin by the interposition of an ichorous fluid contained in vesicles, or bullæ, or diffused generally; it bursts by degrees; and the subjacent integuments are cold, black, flaccid, sloughy, and insensible; sanious or bloody discharge of a most offensive smell.

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* Comment. de Morbis quibusdam, &c. No. 54.

Sometimes peculiarly rapid in its course. Hospital gangrene.

If the sphacelus meet with no check from art or nature it spreads rapidly in every direction, particularly under the first variety; and more especially when aided by an impure or unventilated atmosphere, of which the hospital gangrene, as it is called, furnishes us with a fearful example. "I have seen," says Dr. Hennen, "the external ear and the palpebræ destroyed in this manner as if in a series of concentric circles. Even upon surfaces barely contiguous, as the fingers and toes, it generally spread in a similar way; so that the sore which might have been on the middle finger or toe, and confined entirely to it at the morning dressing, by night engaged the adjoining sound ones, and in less than twelve hours more embraced the whole foot or hand. The gangrene still advancing, fresh sloughs were rapidly formed, the increasing cup-like cavity was filled up, and overtopped by them, and the erysipelatous livor and vesication of the surrounding skin gained ground, while chains of inflamed lymphatics could be traced from the sores to the adjoining glands; thus exciting inflammation and suppuration which often furnished a new nidus for gangrene. The face of the sufferer assumed a ghastly anxious appearance; his eyes became haggard, and deeply tinged with bile; his tongue loaded with a brown or blackish fur, his appetite entirely failed him, and his pulse was considerably sunk in strength and proportionably accelerated.

Description from Hennen.

Great weakness of mind as well as of body.

During this state, Dr. Hennen adds that the bravest soldiers betrayed "the greatest imaginable impatience of pain and depression of spirits. Men who had borne amputation without a groan shrunk at the washing of their sores, and shuddered at the sight of a dead comrade; or even on hearing the report of his death, predicted their own dissolution, and sunk into sullen despair. The third and last stage was now fast approach-

Gen. XI. Spec. I. Gangræna Sphacelus. Mortification.

Melancholy termination.

ing. The surface of the sore was covered with a bloody oozing; and, on lifting up the edge of the flabby slough, the probe was tinged with dark-coloured grumous blood, with which also its track became immediately filled: repeated and copious venous bleedings now came on which rapidly sunk the patient: the sloughs, whether falling off spontaneously, or detached by art, were quickly succeeded by others, and discovered, on their removal, small thickly-studded specks of arterial blood. At length an artery sprung, which, in the attempt to secure it, most probably burst under the ligature: the tourniquet or other pressure, was now applied, but in vain; for while it checked the bleeding, it accelerated the death of the limb, which became frightfully swelled and horribly fetid. Incessant retchings soon came on, and, with cauma, involuntary stools, and hiccough, closed the scene *."

A septic principle developed highly contagious.

In this extreme form of gangrene a septic principle appears to be developed, very highly acrimonious and capable of propagating the same disease by contagion. For not only "upon surfaces barely contiguous" was it found to obtain an existence, but "the skin of other persons, although perfectly sound, which had been touched with a sponge employed in washing the gangrenous sores, ulcerated, and soon became itself a slough. This, adds Dr. Hennen, was often observable among the orderlies and nurses."

Mode of treatment in the different varieties.

Under an inflammatory diathesis.

The treatment belongs rather to the deparment of surgery than of medicine. It is obvious, however, that under the above two varieties it must be greatly varied to meet the variety of cause and constitution. Where an inflammatory diathesis is present, evacuants of every kind must be had recourse to without sparing, as venesection, purging, and relaxants, while the local applications should consist of refrigerant epithems till the entonic action is completely reduced: after which, bark and the

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* Principles of Military Surgery, 2d Edit. 8vo. Edinb. 1810.

Gen. XI. Spec. I. Gangræna Sphacelus. Mortification.

mineral acids, with a nutritive, but not a stimulant diet, should be chiefly relied upon, and, if the fetor be considerable, powdered charcoal, or the yeast, or carrot-poultice should be applied topically. But where, on the contrary, the mortification is that of atony, the warmest tonics and stimulants are demanded, both locally and generally, from the first.

Under an entonic state from the first.

Gangrene from frost-bite.

If the limb be frost-bitten, and there be danger of mortification from this source, a plan of treatment will be requisite different from both the above, the advantage of which is known to every one, though the principle upon which it acts has never been clearly explained.

Its physiology.

The torpitude or insensibility of the part affected is, in this case, evidently produced by the exhausting power of the cold, which destroys or extinguishes the irritable and sensorial principle as rapidly as it is supplied. Putrefaction, however, or a decomposition of the organic structure, does not readily ensue because the auxiliaries of this change, and which are absolutely necessary to its production, such as heat, air, and moisture, are not present: for as the parts become frozen they lose their moisture or fluidity, and as there is no breach of surface, there is no communication with the external air. When a limb in this state is suddenly brought before the fire it becomes gangrenous almost instantly; for by this mean putrefaction obtains possession of these auxiliaries; and, in its process, gains the start of the remedial or restorative power of nature. And hence it is well known that the worst thing that can be done to a frozen limb is to bring it into such a situation. On the contrary, if we give time to this restorative power to exert itself while we prevent the process of putrefaction from taking place, by keeping the limb very nearly in the same condition of freezing, or rather by raising it out of this condition by slow and imperceptible degrees, we shall have the best chance of recovering it to life: since we hereby afford an opportunity for the warm and circulating blood and the active principle of irrita-

Why putrefaction does not immediately ensue.

Why sudden warmth mischievous:

Gen. XI. Spec. I. Gangræna Sphacelus. Mortification.

bility to push forward once more into the vessels of the frozen structure, which, however, weakened and insentient, have not yet become decomposed, and to reanimate it with vital power.

and ice-water serviceable.

The advantage of plunging a frozen limb, first into ice-water, and afterwards into water raised just above the freezing point, and in this manner advancing it gradually to a common temperature, is of general notoriety; and it is this plan which forms the usual treatment. In what way the benefit is accomplished has been a frequent subject of inquiry; the remarks just offered, may perhaps afford a satisfactory explanation of the subject.

SPECIES II.

GANGRÆNA USTILAGINEA.

Mildew-Mortification.

GANGRENE DRY, DIFFUSE, DIVERGENT; COMMENCING IN THE EXTREMITIES, WITHOUT FEVER OR INTUMESCENCE, AND SPREADING TILL VARIOUS LIMBS DROP OFF IN SUCCESSION: GREAT HEBETUDE OF MIND AND BODY; OFTEN WITH VIOLENT SPASMS.

Gen. XI. Spec. II. The necrosis ustilaginea of Sauvages.

Supposed to be produced by the use of grain blighted or mildewed.

This is the necrosis *ustilaginea* of Sauvages, the specific epithet being derived from the cause to which it has commonly been ascribed, and from which, in various cases, it seems to take its rise; I mean the use of grain vitiated or poisoned by the growth of parasitic plants in the interior of the culm or straw, chiefly the "ustilago," "blight or mildew;" whence the name of "*mildew-mortifications*" among ourselves, as that of Ergot, or *spur*, among the French, from the resemblance which the mildewed or blighted corn bears to the spur of a cock, in Latin clavus, which is the name borne by this parasitic plant in the language of many botanists.

GEN. XI. SPEC. II. Gangræna ustilaginea. Mildew-mortification.

Grain thus injured by some fungus or other has been found, when employed as food, productive of two dreadful diseases; to both of which, indeed, the French have given the name of *Ergot*, as occasioned by a common cause; as they have also that of *mal des ardens* from the burning internal heat which is felt in either case. The one of these disorders is a typhous fever, with the general character of pestis, or what Sauvages call erysipelas *pestilens*, which is synonymous with the third variety of PESTIS in the present work: the other is the migratory gangrene before us, which commences, without fever, in the hands and feet, with a sense of numbness and external coldness, a dusky or livid cuticle, great debility of mind and body, often violent spasmodic contractions* : and spreads rapidly over the system, till the fingers, arms, nose, legs, or thighs are affected, and some of them drop off spontaneously.

Hence called by the French Ergot: as also Mal des ardens from its effects.

Mr. Pott has described this species, with a few slight varieties of symptoms, at full length, but without appearing to satisfy himself with any particular cause. "Beginning," says he, "at the extremity of one or more of the small toes, in more or less time it passes on to the foot and ankle, and sometimes to a part of the leg, and, in spite of all the aid of physic and surgery, most commonly destroys the patient. It is very unlike to the mortification from inflammation, to that from external cold, from ligature or bandage; or to that which proceeds from any known and visible cause, and this as well in its attack as in its process. In some few instances, it makes its appearance with little or no pain; but, in by much the majority of these cases, the patients feel great uneasiness through the whole foot and joint of the ankle, particularly in the night, even before these parts

How described by Pott.

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* Morgagni, De Caus. et Sed. Morb. Ep. LV. Art. XXIV. Bresl. Sammlung, 1724. I. p. 643.

GEN. XI. SPEC. II. Gangræna ustilaginea. Mildew-mortification.

show any mark of distemper, or before there is any other than a small discoloured spot on the end of one of the little toes.—Each sex is liable to it: but for one female in whom I have met with it, I think I may say that I have seen it in at least twenty males. I think, also, that I have much more often found it in the rich and voluptuous, than in the labouring poor; more often in great eaters, than free drinkers. It frequently happens to persons advanced in life, but is by no means peculiar to old age. It is not in general preceded or accompanied by apparent distemperature of either of the part or of the habit.

In severer cases the mind affected as well as the body.

In its severer attacks, however, the constitution seems to be generally contaminated, the mind and body become equally debilitated, there is great irritability, and a tendency to convulsive action.

Predisposing causes.

According to every statement this singular disease seems to be connected with a diseased state of the digestive organs, from excess of living, deleterious food, or some other cause in connection with great nervous debility *: and the tendency to gangrene proceeds rather from a deficiency of sensorial power, rather from any morbid condition of the circulating system, whether atonic or entonic. And, hence, we find it best relieved by free doses of opium, in conjunction with a generous and even stimulant diet. Bark is of no avail, and the local use of spirituous fomentations and cataplasms, warm pungent oils and balsams, of as little. Mr. Pott tried them in every form, but without the smallest success: and at length, employing no other topical application than smooth soft unirritating poultices, he confined himself to the use of opium alone, of which he sometimes gave a grain every three hours. And under the influence of this medicine the progress of the gangrene has often become checked in a few days, and a line of separation distinctly marked; soon after which, the mortified parts have

Remedial treatment. Benefit of opium.

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* Home, Facts, and Experiments, p. 81.
Ludwig, Adversar. I. i. 1. 7. p. 188.

Gen. XI. Spec. II.

sloughed away, the diseased bone dropped spontaneously from the affected joint, healthy granulations succeeded, and in due time a cure has been effected.

SPECIES III.

GANGRÆNA NECROSIS.

Dry Gangrene.

THE DEAD PART DRY, SHRIVELLED, HARD, AND DUSKY.

Gen. XI. Spec. III. How produced.

This singular species of gangrene seems to proceed from a marasmus or atrophy of the affected limb, in consequence of which, as in the atrophy of the body at large, the animal oil, flesh, and fluids also are gradually absorbed, and the limb becomes emaciated and withered. During the progress of this change, it necessarily grows feebler and more torpid, till at length it is no longer capable of being stimulated by the sensorial fluid, and its different parts turn dead and rigid. In palsied limbs, a termination of this kind is by no means uncommon.

Surface sometimes natural, sometimes dark coloured; accounted for.

In some instances of this affection, the blood-vessels have collapsed, perhaps become obliterated without a retention of any of the constituent principles of the circulating fluid, and consequently the withered limb has preserved something of the natural colour of the skin. In others, the red particles of the blood, changed, as in the veins, to a dark or livid hue, have, to a certain degree, remained in the vessels and given to the limb a purple or variegated dye. And hence the species has laid a foundation for the two following varieties:

α Albida. White gangrene.	Retaining something of the natural colour of the skin.
β Discolor. Black gangrene.	The natural colour changed to livid, or a mixture of hues.

Gen. XI. Spec. III. Gangræna Necrosis. Dry gangrene.

Why putrefaction does not take place.

It has never hitherto been satisfactorily explained how it happens that under this kind of mortification, or death, the parts should not, as in the preceding species, fall a prey to putrefaction, Perhaps the following remarks may afford some clue to this singular exception.

Explained from the phænomena of a frost-bitten limb.

We have already had occasion to observe, under the first species, that a frost-bitten limb does not putrefy so long as it continues frozen, because the accessaries or co-operative powers of putrefaction, without which this process cannot take place, are not present, such as warmth, moisture, and a free influx of air. Now none of these are present in the species before us, for the limb is cold, completely emptied of its fluids, and impervious to atmospheric influence: and consequently there are the same obstructions to putrefaction in dry gangrene, as in a limb killed by the biting power of frost.

As also from those of a corpse interred in the burning sands of Egypt.

So in the burning sands of Egypt, a buried corpse is often found, if dug up a month or two after interment, with as few marks of putrefaction. I have said that warmth is a necessary auxiliary, but it must be warmth to a certain degree only: for if it exceed this, all the interior fluids will by the heat itself be raised towards the surface, and pass off rapidly in the form of vapour; in consequence of which, the animal substance whence they issue will be as destitute of moisture as if it were frozen, and hence as incapable of putrefying. Now this is the case with a body interred in the sultry sands of the Delta: all its fluids are so highly rarefied as to evaporate, and be drunk up by the bibulous soil by which it is surrounded before any organic decomposition takes place: and hence the buried corpse, instead of crumbling into dust is converted into a kind of natural mummy, some parts of which exhibit proofs of that waxy fat to which the French chemists have given the name of adipocire: but no part of which undergoes the decomposition of putrefaction. I do not mean that this is always the case, but that it has occurred in a variety of instances, where the antiseptic incidents have been peculiarly favourable to such an effect.

Gen. XI. Spec. III. Gangræna Necrosis. Dry gangrene. Singular case of the second variety.

Dr. Alix of Altenburg, gives a singular example of the second variety of this species, in a man of seventy-two years of age, which commenced, contrary to its usual course, with inflammatory symptoms. The back of the left hand was attended with heat, swelling, and pain, accompanied with thirst, a smart fever, and delirium. At the time Dr. Alix saw him, a blackness had spread over all the hand, and part of the fore-arm, which were of a gangrenous hue, but without pain and as hard as wood. The pulse was small, and the spirits low. Amputation was advised, but not agreed to. About six months afterwards he saw the patient again accidentally: the gangrene had spread up to the elbow-joint, the limb was still without pain, the pulse was better, and there was no want of appetite. As it was not supposed the man could live long, no farther inquiries were made about him till a full year afterwards, when he was found to be as firm and stout as ever, although he at this time laboured under a tertian intermittent, and had lost one of his eyes. The gangrene had spread over the whole arm up to the shoulder-joint: the limb still continued hard, and as black as smoked meat; but did not emit any cadaverous smell. In about a month from this time, the arm dropped off spontaneously without the least hemorrhage: the exposed surface of the shoulder dried without any discharge whatever, and the old man, at the time of publishing the case, four years afterwards, was in the enjoyment of a very good share of health *. In this instance, the small proportion of living power which continued after the inflammation had subsided, preserved the limb from putrefaction; aided by the hard and shrunk condition into which it had fallen from absorption, and a paralysis of the secernents.

Progress explained.

Where there is no inflammation topical stimulants, and especially of the oleaginous kind, as camphorated oils and warm balsams, with persevering friction, are

Medical treatment.

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* Matthæi Francisci Alix, Med. et. Chir. Doct. &c. Observata Chirurgica. Fasciculus I. 8vo. Altenburg, 1778.

Gen. XI. Spec. III. Gangræna Necrosis. Dry gangrene. Treatment.

sometimes found useful in the commencement of this disease. Repeated blistering and setons have also proved serviceable, and the voltaic trough still more so, in conjunction with a nutritive and generous diet. But when the gangrene has established itself, medical skill can do nothing more than look on and lament its want of power.

SPECIES IV.

GANGRÆNA CARIES.

Caries.

THE DEAD PART ORIGINATING IN A PORTION OF THE SUBJACENT BONE: PAIN DEEP-SEATED, SUPERJACENT INTEGUMENTS FLACCID AND DISCOLOURED.

Gen. XI. Spec. IV. Comparison of bones with cartilages and membranes.

Bones, cartilages, and membranes in their nascent state are nearly alike; being formed in the same manner, and exhibiting the same kind of structure. Membrane is an expansion of gelatine richly mapped with vessels and nerves, and containing a small proportion of albumen to give it a requisite degree of firmness; cartilage is membrane with a larger proportion of albumen to give it a still greater degree of firmness; and bone is cartilage hardened by an absorption and deposit of lime through the whole of its make. And hence bones, notwithstanding their solidity, possess the same living power and are subject to the same diseases as the soft parts.

Explanation of the specific term.

Like the soft parts, therefore, they are subject to a cessation or loss of this living principle, and the disease is, in this case, usually called a CARIES, a Latin term, probably derived from the Hebrew כרה "to dig into, penetrate, or erode," "to scoop, or hollow out." It may originate in a bone itself, which constitutes a proper caries; or it may be communicated from a superjacent

Caries how distinguished from carious ulcer.

ulceration, in which form it is more correctly denominated a carious ulcer.

Caries. Chiefly belongs to the department of surgery.

The history and treatment of caries belong rather to the department of surgery than of medicine; and are to be learnt from writers on this branch of the profession who have expressly treated of it; among whom may especially be mentioned Wiseman *, Petit †, and Monro ‡, particularly the last, as his learned and ingenious essay on this subject ought to engage the attention of every one. The remarks, therefore, to which the author will limit himself, will be general and pathological, and as summary as possible.

Causes.

Most of the causes that produce a gangrene in the soft parts may produce a caries or gangrene in the bones: as external injuries, cold, and a deficiency of nutrition in consequence of old age or deleterious food. It is also not unfrequently produced by some acrimonious or poisonous principle lurking in the circulation, as that of lues, porphyra, or scrophula.

How discovered where no external ulcer.

It is usually first ascertained where there is no external ulcer, by an obtuse and deep-seated pain which appears to issue from the bone; an exostosis or protuberance of the bone, or periosteum in the part affected; tenderness to the touch; a loose and flabby feel of the superincumbent integuments, and a discoloration of the skin. On being laid bare it evinces all the different modifications of sphacelus which we have just noticed in the soft parts: for it is sometimes moist and worm-eaten, forming the caries *vermouillè* of M. Petit, the cells being filled with a corrupt sanies or spongy caruncles, so that the whole assumes a quaggy appearance; and sometimes dry and wasted: and the dry variety, as in necrosis, is sometimes of a pale white, and sometimes of a black or livid hue. And hence M. Petit has subdivided the disease

How divided by Petit.

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* Surgery. Book II. ch. 7.

† Maladies des Os. Tom. II. ch. 16.

‡ Edin. Med. Essays, Vol. V. p. 279.

Gen. XI. Spec. IV. Gangræna Caries. Caries.

into four distinct species or varieties, founded on these remarks, but into which we have not space to follow him. The dry caries is generally the most superficial, and consequently exfoliates most easily; the history and laws of which very curious process, we have already pointed out under the genus APOSTEMA; for the economy pursued by nature in the separation and removal of a dead soft part, is precisely the same as that pursued in the separation and removal of a dead portion of bone. The ancients attempted to expedite this by various means, some of which were puerile; but others far more worthy of notice: particularly the destruction of the integuments by the potential cautery, and afterwards an application of the actual cautery to the dead bone itself. Celsus gives a detailed account of this operation, which, when the caries was deep, was accompanied with numerous perforations into the bone, into each of which the hot iron was passed in succession.

Separation how attempted to be quickened by the ancients.

Potential cautery.

Actual cautery.

Perforations into the bone.

Signs of separation.

When the restorative power of art or of nature has succeeded in forming a healthy line of separation, and detaching the dead part from the living, the former is usually thrown off in a cylindrical plate; and before the exfoliation is accomplished, we are able to hear, as Severinus has justly remarked, a shrill sound whenever the carious plate is struck with a probe, as if it were hollow. Soon after this the edges of the exfoliating part rise a little, and a little pus or even blood is easily pressed out at the margin. Here also granulations begin at this time to appear, which spread over the sound bone underneath, and seem to assist the dead plate above, so that it gradually becomes loose, and can soon afterwards be taken away without violence.

Progress afterwards.

In the cylindrical bones often separated to a great extent.

The dead part of a bone is sometimes separated and thrown off to a very great extent, and especially in the cylindrical bones *. The whole body of the tibia has in

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* Bartholin. Art. Hafn. Obs. 1.
Nicholai, Diss. Observ. quædam Medico-chir. Jen. 1786.

Caries.

this manner been occasionally detached by nature from its extremities, and its place supplied by a vicarious callus which has run down the whole of the interior groove hereby produced, and acquired the hardness of bone. Several cases of this kind are given in the Edinburgh Medical Essays *; in one of which the caries appeared in both legs: the total tibia of one limb, as the writer Mr. W. Johnston of Dumfries, informs us, being separated and thrown off at once; while that of the other was detached in small pieces, and thrown out gradually. In five months from the removal of the entire tibia the patient, a boy of eleven years of age, was able to walk without crutches, continued well afterwards, and was fit for any country work; the legs being straight, with only a little thickness at the ancles. Justamond gives a similar case of the humerus, and Sherman of the thigh-bone. I have occasionally seen this natural process imitated successfully both in the tibia and the bones of the fore-arm, and the diseased part taken out by a saw; by which process a very long period of pain and confinement has been saved to the patient.

Examples. Tibia and fore-arm imitated by art.

Both tibias.

If the caries commence in the internal laminæ, the superjacent sound part has sometimes been opened through its whole length by the trephine applied in a line of succession: the carious part has thus obtained an easy exit as soon as detached, and the entire bone has soon been renewed. The humerus was thus treated successfully in the case of a negro-boy, as related by Mr. Walker to Mr. Else, in the Medical Transactions †.

Caries of the spine.

A caries of the spine from the tumid, and, so to speak, *inflated* appearance of the superincumbent integuments, was formerly denominated spina *ventosa:* and the term has, with great inconsistency, been since applied by many writers to all bones whatever affected in the same

Spina ventosa what?

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* Vol. I. p. 192-4. Vol. V. p. 370.

† Vol. III. p. 27.

Gen. XI. Spec. IV. Gangræna Caries. Caries.

manner, and particularly those of the tarsus and carpus; as it has by others been applied, with equal incorrectness, to a general softness or flexibility of the bones, as in parostia *flexilis*, or cyrtosis.

In vertebral caries, Mr. Brodie has given cases which make it probable that here also the disease sometimes commences in the bones, and sometimes in the intervertebral cartilages; for in various instances the loss of substance was greater in the former, and in others in the latter *.

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* Observations on Diseases of the Joints.

GENUS XII.

ULCUS.

Ulcer.

A PURULENT OR ICHOROUS SORE, PRODUCED BY THE SEPARATION OF A DEAD PART.

Gen. XII. Appertains chiefly to the department of surgery.

This genus of diseases is, in every species, a subject of manual attention, and chiefly to be remedied or cured by external means. Its mode of treatment, therefore, must be learned under a course of surgical lectures: and it is only noticed in the present place to show the exact station which it ought to bear in a general system of nosology founded on a physiological basis. Ulcus is, strictly speaking, a Greek term with a mere change of one convertible vowel for another, to give it more of a Latin form; the derivative noun being ἕλκος, probably, as conjectured by Eustathius, from ἕλκω, "traho," in the sense of "distraho," hereby producing what the Greeks called a λύσις συνεχείας, which is literally a "solution of continuity."

Origin of generic term.

Treated of under different principles of subdivision.

Ulcers have been treated of by different writers under a great variety of divisions and subdivisions; sometimes as being connected with the state of the constitution, or as being a mere local disease; sometimes as recent or chronic; and sometimes as mild or malignant; but, as local ulcers may become constitutional, the constitutional may assume various forms, the recent be rendered chronic, and the mild and malignant change places, none of these characters are calculated for clear or permanent distinction. And hence another principle has been appealed to in the volume of Nosology derived from the variety of their

GEN. XII. Ulcus. Ulcer.

external form, and they have been contemplated under the following species:

1.	ULCUS INCARNANS.	SIMPLE HEALING ULCER.
2.	—— VITIOSUM.	DEPRAVED ULCER.
3.	—— SINUOSUM.	SINUOUS ULCER.
4.	—— TUBERCULOSUM.	WARTY EXCRESCENT ULCER.
5.	—— CARIOSUM.	CARIOUS ULCER.

SPECIES I.

ULCUS INCARNANS.

Simple healing Ulcer.

THE DISCHARGE PURULENT, THE SURFACE HEALTHY AND GRANULATING.

GEN. XII. SPEC. I. In this state a simple process of nature to restore soundness.

All other forms must be reduced to this.

WHEN an ulcer assumes this form it is hardly to be called a disease; being nothing more than the ordinary process of the instinctive or remedial power of nature to restore the substance that has been lost by external violence, or some internal morbid action, and to endow it with the same attributes of vascularity, feeling, and motion. It is to this form that all the other species of ulcer must be reduced before a cure can be accomplished or even hoped for. Even the surgeon has here little upon which to employ himself; for with cleanliness, a light and easy dressing, plain, unirritating diet, and regular hours, the processes of incarnation and cicatrization, which we have already explained under the genus APOSTEMA, will proceed spontaneously, and without obstruction, and a cure be speedily completed.

SPECIES II.

ULCUS VITIOSUM.

Depraved Ulcer.

WITH A VITIATED SURFACE AND SECRETION.

Gen. XII.
Spec. II.

This degenerate condition exhibits itself under various forms, and results from various causes. The modifications most worthy of notice are the following:

α Callosum. Callous ulcer.	The edges indurated and retracted.
ϐ Spongiosum. Fungous ulcer.	With fungous or spongy excrescences.
γ Cancrosum. Cancerous ulcer.	With a hard, livid, lancinating irregular, and frequently bleeding tumour at its base.

Causes constitutional or local.

The causes in each of these may be constitutional or local; and, in managing the ulcer, it is of great importance to determine this point; for the patient may otherwise be put very needlessly upon a long course of alterants, or may omit such a course when absolutely necessary. If there be a cancerous, a scrophulous, a scorbutic, a venereal, or any other taint in the blood, it will be imperative upon us to pursue the respective modes of treatment already laid down for these several complaints, since otherwise no topical applications can be of the least avail.

Constitutional from specific taint: how to be treated.

From general debility:

There may be also a considerable degree of constitutional debility and relaxation, to which the depraved state of the ulcer is owing; and in truth this is the most common of all the constitutional causes, and one which demands quite as much attention as any of the rest. In

Gen. XII. Spec. II. Ulcus vitiosum. Depraved ulcer;

treating of abscess, we endeavoured to show that one of the uses of pus is to produce healthy granulations; and in treating of inflammation we observed that a certain degree of vigorous and entonic, as well as inflammatory, action is necessary for the secretion of pus. And hence if the system be without this condition, the ulcer cannot heal; and, instead of genuine pus and healthy granulations, we shall find a watery, ichorous fluid poured forth, of no advantage whatever, and often of an acrimonious quality, that irritates and thickens, and sometimes erodes and extends the edges of the ulcer; or a thin imperfect pus which gives rise to flabby and fungous granulations that sprout up, indeed, rapidly and luxuriantly, but want firmness of texture, show a weak and morbid sensibility, and bleed and die away almost as soon as they are formed.

how to be treated.

Where this is the case, the ulcer, whatever modification it assumes, can only be brought into a healing train by increasing the health and vigour of the constitution. This, however, it is often difficult to accomplish; for, in very numerous instances of obstinate ulcers, we find the constitution has been exhausted and worn out by hard labour, hard drinking, or a long exposure to a tropical sun, and is labouring under a long train of dyspeptic, hepatic, or podagral symptoms. It is not necessary to repeat the plan it will be incumbent upon us to pursue under these circumstances, as we have already detailed it under the constitutional affections themselves. And if, by persevering in such general treatment, we can give to the constitution a sufficient degree of vigour, the only difficulty we shall have to encounter is the vitiated state, and perhaps habit, to which the ulcer has been reduced in consequence of the constitutional affection.

Principles of treatment when local.

We hence come to the local treatment of ulcers which forms a direct branch of surgical, and even manual attention. And I shall hence only farther observe, that the principles which seem to have been productive of the best success, are those of changing the nature of the vitiated action by a local application of irritants; and

Use of topical irritants:

Gen. XII. Spec. II. Ulcus vitiosum. Depraved ulcer. Use of astringent: bandages:

increasing the tone of the vessels by warm suppuratives and astringents, and the pressure of elastic bandages, which should be made of calico or the finest flannel. Mr. Baynton preferred the former on every occasion, as less cumbrous and more cleanly, and as being "a better conductor of that morbid heat which so constantly affects inflamed parts." In many cases, however, and particularly in cold, edematous limbs, it is rather desirable to accumulate than to carry off heat; and here the use of flannel will be preferable to that of calico; it possesses, moreover, more elasticity, and when thin and fine is neither more cumbrous nor more uncleanly.

Actual cautery how far useful.

When the edges or intersections of an ulcer have acquired a callous thickness, or scirrhosity, the actual cautery has often been applied with success, and especially in the manner recommended by M. Maunoir, who has given an instructive history of his practice in the ninth volume of the Medico-Chirurgical Transactions. The instrument he employs he calls, from the form of its bulb, an iron olive. It is, in effect, an iron rod with a bulb at the end, of the size of a tonquin-bean. For the sake of rapid execution he heats several of these at the same time in a fierce fire, and uses them at a white heat, passing each in succession with great speed over the morbid part, so as to make a considerable rut or groove as he proceeds. The pain endured seems to be far less than might be expected.

Maunoir's method of application.

The cautery thus prepared and applied, has been frequently found the most effectual as well as the shortest means of extirpating cancerous schirrosities about the lips, and other parts of the surface. And it is peculiarly calculated for radically destroying many of those irregular and spongy excrescences which, from their readines to bleed freely, have been distinguished by the name of FUNGUS HÆMATODES.

Fungus hæmatodes.

The nature and origin of these parasitic substances have not been very satisfactorily explained. By some writers, and especially by M. Roux, they are regarded as soft and fungous cancers, but they seem to be with-

Gen. XII. Spec. II. Ulcus vitiosum. Depraved ulcer.

Genuine character.

Origin and progress.

out any of the pathognomic signs by which cancers are distinguished. They are not known to be hereditary, nor to become scirrhous in any stage, nor do they chiefly affect a glandular situation. They are found in every part of the body, appearing at first like a small sarcomatous tumour, with a soft or medullary feel: the tumour enlarges, and secretes an acrimonious fluid which contaminates the parts adjoining, whether gland, muscle, cellular membrane or periosteum, and converts them into its own nature. At the same time it erodes the skin and soon sprouts above it in a loose, luxuriant and cauliflower form, of a dark red, or purple hue, loaded with blood-vessels, and bleeding profusely upon a slight puncture or even pressure. This singular fungus has often sprung up in internal cavities, as the ball of the eye, the lungs, the testicles and the uterus: and has occasionally appeared in the breast, the spleen, and the liver. In these situations it is apt to ravage without restraint, and there is great difficulty in destroying it without destroying the organ from which it issues. But wherever the hand can follow them they are often repressed, and have been sometimes extirpated by caustics, and particularly by being sprinkled with a mixture of powder of arsenic and opium; and sometimes, where it is seated on a narrow peduncle, by a ligature. The actual cautery, however, wherever it can be applied, seems to afford the quickest and most effectual cure, and in the peduncular variety offers the best means of preventing a profuse hemorrhage, by being applied to the stump after the body of the tumour has been removed by the knife.

Sometimes found in internal cavities.

Treatment.

SPECIES III.

ULCUS SINUOSUM.

Sinuous Ulcer.

COMMUNICATING WITH THE NEIGHBOURING PARTS BY ONE OR MORE CHANNELS.

Gen. XII. Spec. III. Pathology.

We have already seen that inflammations of every kind propagate themselves by continuous sympathy; and hence one cause of the spread of those that are ulcerative. But ulcerative inflammations do not spread equally; for those parts are most subject to their action, and consequently give way soonest where the living principle is weakest, or the structure is most loose and cavernous. And hence a more frequent origin of hollows and sinuses in the cellular substance, particularly in the more dependent parts, as about the rectum, and the urethra.

How first formed.

How deepened.

These sinuses or hollows are soon filled with lymph or some other fluid, and this fluid, in a vitiated state of the ulcer, soon becomes acrimonious and erosive; and we have hence a chemical cause of extension or elongation added to that of a structural. And to this cause we are chiefly to ascribe the origin of the fistula *lachrymalis.*

Whence rendered callous.

When these sinuosities are first formed or scooped out, their walls are soft, irritable, and of the common cellular web; but when they have remained for a considerable period of time they become callous and insensible: forming the two following varieties noticed in the volume of Nosology.

α Recens. Recent Sinus.	The channel fresh and yielding.

GEN. XII. SPEC. III. Ulcus sinuosum. Sinuous ulcer.

ϲ Fistulosum. Fistulous or Pipy-sinus. The channel chronic and indurated.

The form of a sinus how ascertained.

The form assumed by a sinus is determined by the course of the probe; its capacity by the quantity of water or any other fluid it will contain when injected by a syringe.

Modes of attempting a cure various.

Explanation of the three usually pursued.

Three modes of cure have been attempted, that of incarnation or filling up the hollow by sound granulations issuing from the bottom; that of coalition or an union of the walls of the sinus, and that of destroying it by an opening down its entire length. The first is sometimes accomplished by warm detergent balsams or lotions where the sinus is shallow. The second is more usually had recourse to where it is deeper; and attempted first by irritant and even erosive injections, so as to excite a new inflammation down the whole course of the canal; and afterwards by pressure applied at first to its lowest part, and advanced gradually to its mouth; or, which is better, by a seton passed from the orifice of the ulcer to the utmost depth of the sinus, leaving here an opening sufficiently large for the escape of whatever matter might otherwise collect and become stagnant. The third mode of cure is effected by the knife, and where unaccompanied with danger or inconvenience from the vicinity of large blood-vessels or nerves, is by far the speediest and most decisive of the whole.

SPECIES IV.

ULCUS TUBERCULOSUM.

Warty Excresent Ulcer.

WITH TUBERCULOUS EXCRESCENCES, LOBED BY RAGGED AND SPREADING EXULCERATIONS.

Gen. XII. Spec. IV. Synonyms. Noli me tangere. Lupus. General character.

This is the NOLI ME TANGERE of many writers, and the LUPUS of others; evidently referring to the caustic acrimony of the discharge which flows from it, and affects the fingers or whatever other parts come in contact with it; and the ravenous, or wolf-like voracity with which it preys on the neighbouring organs, spreading in ragged and fungous lobes or with cracking and callous edges, and destroying the skin through an extensive range, and the muscles to a considerable depth.

Why called a cancer.

A valuable practicable paper upon this disease is to be found in the Philosophical Transactions* addressed to the Royal Society by M. Daviel, surgeon to Lewis XV. of France; who describes it as a cancer, to which, indeed, from its tendency to ramify and the virulence of its discharge it has some resemblance; and whence Sauvages denominates it cancer *Lupus*. It commences in the subjacent periosteum or perichondrium from a diseased condition of the organ; at first assumes externally the form of a tubercule or wart; and though found over the body generally, is most common to the eye-lids, nostrils,

Origin and progress.

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* Vol. XLIX, year 1755.

Gen. XII. Spec. IV. Ulcus tuberculosum. Warty, excrescent ulcer.

cheeks, and other parts of the face. It is highly irritable; and when the tubercle has acquired the size of a fig or filbert it ulcerates the cuticle, shows a callous edge, and spreads with a most offensive ichor in every direction: often throwing forth fungous excrescences from the bottom.

Sometimes herpetic on the surface.

Occasionally before it opens externally, from the acrimony secreted below, an herpetic vesication is formed on the surface.

Medical treatment.

If partially extirpated it grows again with rapidity and to a greater extent; caustics always exacerbate it; and the only radical cure consists in dissecting the diseased part, and removing the whole of the periosteous or cartilaginous base as far as it appears to be affected.

SPECIES V.

ULCUS CARIOSUM.

Carious Ulcer.

THE ULCER EXTENDING INTO THE SUBSTANCE OF THE SUBJACENT BONE.

Gen. XII. Spec. V. Carious ulcer how distinguished from caries.

When a portion of a bone is killed by an ulcerative process commencing in itself, it forms as we have already observed, a caries properly so called. When it is destroyed by the spread of a sore commencing in the integuments or muscles above it, the disease is called a carious ulcer. And when the ulceration extends to the medulla of the bone it is often denominated an arthrocace.

Arthrocace what.

Gen. XII. Spec. V. Ulcus cariosum. Carious ulcer. General nature described already.

Upon this subject, however, it is not necessary to enlarge in the present place; as we have already discussed the general nature and the ordinary forms of ulceration under the FIRST SPECIES of the Genus before us, and the mode by which the death and separation of one portion of bone from another are effected, under the FOURTH SPECIES of the preceding Genus.

END OF VOL. II.

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ERRATA. VOL. II.

Page 5, for *exhalent*, first line at the top, read *exhalant.*

9, for the semicolon *(;)*, six lines from the top, read *to.*

20, for *Lizari*, two lines from the bottom, read *Lizzari.*

68, for *had*, twenty lines from the bottom, read *have.*

118, for *affects*, eleven lines from the bottom, read *effects.*

222, omit *that*, seven lines from the top.

244, for *Porticum*, six lines from the top, read *Psoaticum.*

ib. for *hepaticum*, seven lines from the top, read *hepatis.*

445, for *Tozzeti*, eleven lines from the top, read *Tozzetti.*

452, for *maligna*, *malignant dysentery*, thirteen lines from the top, read *pyrectica*, *Dysenteric fever.*

533, for *colchicium*, six lines from the bottom, read *colchicum.*

797, before *induces*, eighteen lines from the bottom, read *it.*

799, for *though*, nine lines from the bottom, read *thought.*

841, for *nymphæ*, thirteen lines from the top, read *nymphæa.*

857, for TALICA, two lines from the top, read ITALICA.